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*Canada, Civil Defence*



# CIVIL DEFENCE

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# SPEAKER'S KIT



INFORMATION SERVICES DIVISION  
Department National Health and Welfare  
OTTAWA, ONTARIO







# FOREWORD

It is now several months since Information Services Division of the Department of National Health and Welfare distributed its first Speaker's Kit among the various Civil Defence organizations in Canada. Encouraged by the country-wide response, it has been decided to renew this Kit with added material and to make further revisions as justified by developments.

The speeches have been divided into two groups: Introductory and Follow-up. The first group comprises speeches intended to arouse public interest in Civil Defence and may be used before any audience, particularly one which includes citizens who know very little of Civil Defence. The second group includes more specialized talks targeted for people who know something about Civil Defence and probably already are members. These talks are more informative and instructive.

Added to the Kit is a brief outline of Aids for speakers, for the benefit of those speakers who have had little or no experience on the public platform.







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# AIDS FOR SPEAKERS

Talks to an audience may be inspirational, informative or instructive. Occasionally, an address may comprise all three. In this Speaker's Kit you will find all varieties.

But whatever the purpose of a talk, to be effective, it must hold the interest of the audience. Without interest, the speech cannot be assimilated by the hearers and both their time and the speaker's will be wasted and the cause, if any, will not be advanced. Worse still, it might result in producing an apathy which would be hard to overcome in the future.

We are offering a few suggestions for the benefit of Civil Defence members who are sufficiently devoted to the cause to go out and tell the public what Civil Defence is all about and its vital need to the community and the country, but who may have had little or no experience in public speaking.

Obviously, any speech to be a success depends greatly upon the thoroughness of preparation, its presentation and the personality of the speaker. The subject matter might be of the highest calibre, as all phases of Civil Defence are, but its value in an inspirational, informative or instructive sense will always be related to the ability of the speaker and the receptivity of the audience.

So let us consider a talk or speech under the three heads, Preparation, Presentation and Personality.

Nothing can give confidence so surely as full preparation and practice. The first thing, then, is to make quite certain that you know the subject thoroughly yourself: "If You Haven't The Goods You Can't Deliver Them".

Consider the purpose of your talk and its scope, how far to go in the subject, pick out the essentials, what the audience should know.

The purpose of the talk governs the selection of material to include in it. Avoid the temptation to pack in too much information, otherwise it may be hurried and cramped for time.

The talk should be presented in a way that people of varied intelligence can grasp.

Only a few minutes should be devoted to the object or introductory part of your talk, enough to explain its purpose.

Decide upon the main headings and the sequence they should follow. Under each heading write, in a sentence or two, the main features to be elaborated. Prepare all the material carefully and consider any points which may require special emphasis or which the audience may have difficulty in understanding.

Allot definite time limits for each particular phase of your talk so that you may proceed in smooth and balanced fashion from the start to conclusion. If a speaker prefers, he may write the whole of his lecture in full and underline those points which require emphasis. Some lecturers feel more confident if they have a full script before them to which they can refer.

A talk should be rounded off by a summary, a brief recapitulation of the main points discussed.

If a piece of equipment is employed to demonstrate anything, the detail of the demonstration must be most carefully prepared.



It is well, when time permits, to rehearse your talk until you are satisfied and fully confident in your knowledge of the subject.

On the other hand, try and avoid the appearance of a set lecture, otherwise it may sound stilted.

If the script has been prepared in full, go through it and delete all "written English" phrases substituting "conversational English". There is a vast difference between the two.

Mannerisms are part of the individual and his individuality. Suitable mannerisms assist the talk, while bad mannerisms irritate. It may be useful to get some candid, but friendly, criticism. But do not iron out all mannerisms so that individuality is lost. Try to develop a technique to suit yourself. Avoid violent or continuous movement.

You should speak clearly and deliberately. Speak up and in a lively fashion to hold your audience alert and attentive. Vary the pitch and intensity of the voice, laying emphasis where necessary so as to make it easier for people to follow.

Note how your audience is reacting; if they are interested or restive or bored. Talk to the entire audience.

At the end of the talk, if time permits, ask for questions. Encourage the questioner by saying "that's a good point" or "I am glad you raised that", etc.

Repeat the question so that all the audience will know what the question is and then give the answer.

If you don't know the answer, say so; promise you will find out and let the questioner know and be sure to do so.

Certain talks will benefit greatly by good illustration — charts, diagrams, exhibits, lantern slides or pictures shown by epidiascope and the use of the blackboard.

A well prepared model or diagram arouses interest and saves a lot of ineffective explanation.

A speaker should make a good start so as to give the audience an immediately favourable impression which will encourage their interest and attention.

Do not begin by saying "I am afraid this is a boring subject". The audience will then expect to be bored and you will have to work the harder to induce the proper frame of mind. Neither begin by saying "I don't know much about the subject". You will lose the confidence of the audience immediately and this is extremely hard to regain.

Shyness is a natural symptom which will disappear with practice and experience. Everybody suffers from it to begin with but with confidence in his preparation, the speaker should not worry too much about shyness. He will soon become immersed in his subject.

Vitality, vigour and zeal displayed by the speaker will stir interest and hold attention.

A speaker should try to develop a style suitable to himself which will make the most of his personality.

And remember, poor talks are usually the result of poor preparation and presentation. Every person who talks on behalf of Civil Defence should realize that he is serving his country, his fellow citizens and neighbours in a vital national cause.





# INTRODUCTORY SPEECH

No. 1

Time: 20 minutes

## CANADA'S CIVIL DEFENCE POLICY ON EVACUATION

Canada's Civil Defence policy today is based on evacuation of our main urban centres prior to nuclear bombing attack.

Hon. Paul Martin, Minister of National Health and Welfare, announced the Government's present policy during a statement on Civil Defence in the House of Commons, July 28, 1956, when he stated:

"Our civil defence policy should now be based on the development and testing of plans for the orderly evacuation on short notice of the main urban areas in Canada should the possibility of attack on such areas by nuclear weapons appear to be imminent."

Canada's military authorities have now advised the Government that in any major war the North American Continent will be attacked with high-yield nuclear weapons from the outset with little, if any, warning. Accordingly, our civil defence policy must be so designed as to ensure the survival and safety of as many of our population as possible in the event of a nuclear attack on this country.

In arriving at a decision on this matter, it was necessary to take into account such factors as the following: the nature and yield of enemy weapons which can be delivered against this country; the degree of warning to be expected; the density of population of the country and, in particular, of the probable target areas; and, finally, the transportation and other resources available for survival.

It may be assumed that in any major war involving this country, the air over Canada is likely to be the scene of vital air battles, and that numbers of enemy aircraft carrying nuclear weapons for delivery on targets in the United States or Canada may fail to reach their targets or may be shot down over Canada. In such circumstances, it seems certain the bombs carried by such enemy aircraft will either be delivered against our larger cities — as targets of second choice — or, alternatively, jettisoned and detonated almost anywhere in Canada.



Fortunately, Canada has certain advantages, as compared with other countries, in meeting the menace of nuclear attack. We have only a limited number of cities considered to be probable target areas. We have few centres of dense population, excellent transportation facilities, and the probability, with the DEW Line completed, of a minimum of three hours' warning of attack.

There are, therefore, two problems:

- how to ensure the survival of the population in the larger Canadian cities in the face of high-yield nuclear weapons directed against them; and
- how to provide the whole Canadian population with protection against radioactive "fallout" resulting from the use of nuclear weapons whose place of detonation cannot be predicted.

The immediate effects of the larger nuclear weapons in the megaton range are such that no one within three miles of the point of impact and few within six miles can be expected to survive. Moreover, the variations in probable ground zero may well be of the order of two miles in any direction, thus making the chances of survival very slight within a radius of eight miles of any probable target or, consequently, in any Canadian city which is likely to be hit.

The policy of evacuating target areas has been for some time advocated by the United States Government and more recently both Sweden and the United Kingdom — whose evacuation problems are more difficult than ours — have indicated that they are shifting the emphasis in their policy away from shelter in the direction of evacuation. All available experience and tests show that evacuation is feasible. It is unlikely that complete evacuation can in all cases be achieved prior to the initial attack owing to the limited amount of warning available. However, since most of the enemy's primary targets are likely to lie in the United States, there is reason to hope that there will be an opportunity to continue the evacuation of some target areas in Canada for a few hours after the initial attack on North America has begun.

It is expected that Canada will get sufficient warning of attack to make the evacuation of cities possible. This warning will probably be a matter of hours rather than days. The minimum warning will be three hours with the DEW Line in operation. It is probable, however, that most of the cities in Canada scheduled for evacuation will not be hit in the initial wave of an attack on North America. Plans for evacuation, therefore, should be phased to take advantage of the maximum degree of warning granted us.

In any future conflict, the basic problem would be survival. The first few days of nuclear warfare would be the worst. If we can survive these first few days, we will, most likely, survive such a war.



It has been decided, therefore, as a matter of Government policy that plans should be developed for the evacuation of the following areas in Canada should the emergency arise:

MONTREAL  
TORONTO  
OTTAWA-HULL  
WINDSOR  
NIAGARA FALLS  
HALIFAX  
VANCOUVER

HAMILTON  
WINNIPEG  
EDMONTON  
QUEBEC CITY  
SAINT JOHN, N.B.  
VICTORIA

Successful experiments in evacuation already have been carried out in such centres as St. John's, Newfoundland; Brockville, Brandon and Calgary. From these experiments useful techniques have been developed without disturbing the larger centres. It is urged that no large evacuation test take place in any city until plans have been fully prepared and the total population of the area has a good working knowledge of these plans.

While the development of evacuation plans for the thirteen centres designated is essentially a provincial and local responsibility, the Federal Government stands ready to offer its fullest co-operation in working out the details of evacuation, delineating the surrounding communities that would be utilized for the reception of evacuees and planning to meet the problems that will flow from this arrangement in respect to food, fuel, communications, hospitalization and the maintenance of organized life for the emergency period in these reception areas.

As an example, let us assume that it is proposed to move 245,000 persons out of the Ottawa-Hull area. Be assured the provincial civil defence authorities and the civic authorities as well as the federal civil defence experts, will be prepared to sit down and work out detailed arrangements as to the number of persons that would have to be moved to existing communities such as Arnprior, Almonte, Carleton Place, Smiths Falls, Perth, Kemptville and so on. They will also be happy to share in solving problems relating to plans in such fields as welfare, health, and the most orderly arrangements for rapid transport.

In addition, a Federal Guide to Survival Planning, dealing with the four phases of the evacuation plan, has already been issued to all provinces. This is a guide not only to evacuation and reception, but for the survival of the population against radioactive "fallout".

It is not considered that wholesale evacuation of the entire population of a city after the alert is sounded is either practical or necessary. Should a general deterioration

in the international situation presage the probability of attack, that would be the time to move out parts of the population not absolutely necessary to the life of the city – the mothers, the small children, the sick and elderly people. The aim is to avoid family separation as far as possible. This advance precautionary evacuation is what is called Phase "A" in the overall federal plan and would require from six to twelve hours to complete.

Phase "B" – the second stage in the evacuation plan – would be carried out when warning is received that enemy aircraft have been located actually approaching Canada. The withdrawal of the remainder of the population and part of the civil defence organization should be planned under Phase "B". However, a final element of police, fire and other civil defence detachments, with adequate shelter, would remain in the outer rings of the city to ensure its security. With proper planning, it should be possible to complete Phase "B" in three hours on the basis of a vehicle speed of 25 miles per hour and a density of 1,000 vehicles per hour past a point per lane of traffic.

Phase "C" consists of action after the bursting of a nuclear weapon. It is, of course, possible for the provincial and municipal authorities concerned to make some advance decision on the cities that must be evacuated during Phases "A" and "B" and to prepare and rehearse plans. The population of communities not officially scheduled for evacuation in these Phases ("A" and "B"), because of the unlikelihood of direct attack, should be made aware that their best chance of survival is to "stay put" unless, or until, the civil defence authorities order them to evacuate in Phase "C" because of the impending arrival of "fallout". In this connection, the Defence Research Board has an operational research section on civil defence matters. It is expected that they will have a comprehensive guide on protection against fallout available shortly. It is therefore essential for the cities and larger towns not scheduled for evacuation in Phases "A" or "B" to prepare and rehearse plans for evacuation in Phase "C" to escape "fallout".

Phase "D" of the Survival Plan incorporates all the varied activities that must be carried out to provide aid and rehabilitation to individuals, families and communities after the blow has struck. This will include personal problems such as reuniting the various members of a family. Here, too, civil defence authorities are ready and eager to assist in developing plans best suited to the particular circumstances of the communities under their jurisdiction.

Evacuation as just described is not necessarily the final answer to all our problems in all conceivable circumstances, nor is it certain that new sets of circumstances will not face us in the future as newer and more frightening weapons come into existence. Nor should we minimize the problems that would arise in any attempt to move large numbers of people on short notice out of crowded cities to areas of greater safety. But, in the face of what



we now know of the destructive potential of weapons in the megaton range, it is simple realism to acknowledge that it would be sheer folly to counsel people to take shelter in their cellars. Faced with the prospect of a weapon that can create a gaping crater in the ground 200 feet in depth, it is evident that distance is, for the present at least, the only effective defence.

For persons outside the area of attack who may have to risk the danger of fallout the problem is, of course, completely different. Obviously, basements and shelters at least three feet in the ground are the best and only known defence against the effects of radioactive fallout. Persons not in target areas should be advised, therefore, that if they are in a city or within ten miles of a bomb explosion they should take refuge and stay undercover until a civil defence worker tells them that it is safe to come out. They should also be advised to keep on hand certain basic supplies such as a small battery-operated radio, enough canned food and drinking water to last for a few days, some blankets, extra clothing, flashlights, etc.

In the tragic event of a third world war, each weapon dropped on a large city would probably be the equivalent of 20 million tons of TNT – or more. To appreciate the magnitude and horror of this threat we have but to recall that all the bombs carried by all the American and all the British bombers during World War II totalled an equivalent of two and one-half million tons of TNT. In other words, one solitary airplane carrying a single bomb would have a destructive potential eight times greater than the cumulative effect of six years' bombing in all-out conventional war.

The avoidance of war is the common denominator of all our policies in the military, political, economic and social spheres. Paradoxically enough, an essential contribution towards the prevention of war – in the absence of effective disarmament measures – is the continuation of our efforts to strengthen the defensive power of the free world.

Unfortunately, there is no absolute proof in the present world situation to convince the free nations that the need for vigilance is over. The threat to freedom remains, and it is the duty of every democratic government – while continuing to work for the settlement of outstanding problems by peaceful means – to provide a measure of defence within its capacity and related to the magnitude of the threat.

And civil defence is an essential part of the nation's total defence effort. Preparation for civil defence is an immense, complex, thankless and sometimes frustrating task. It can only succeed if governments at all levels and individual men and women all across Canada are prepared to accept their responsibilities of citizenship in mature awareness of the heavy obligation that has been thrust on this generation to help safeguard the future of human civilization.







# INTRODUCTORY SPEECH

No. 2

Time: 15 minutes.

## CIVIL DEFENCE IS EVERYBODY'S BUSINESS

Civil Defence involves all of us. It's your problem and mine, and everybody's problem.

"How can this be?" dwellers in smaller communities may ask. "Nobody is going to bother to drop an A-Bomb or an H-Bomb on us. They don't waste powerful weapons on small targets".

They could be right about that, of course, but it would be a mistake to think that anyone could escape being involved if this country is attacked with atomic weapons.

Every Canadian alive after such an attack would be intimately involved in some phase of the consequences.

It is our belief that our warning devices will give us enough time to get far enough away from the danger spots before the bombs explode. But the evacuation will have to be planned well ahead if we are to take full advantage.

Even if all our major cities were hit, the enemy would have made a shambles of things, but he wouldn't have defeated the country.

A lot of buildings and machinery would have been ruined — but only a small percentage of our total real estate. Over ninety per cent of our land mass and most of our people would be alive and unharmed.

The danger wouldn't be over yet, because after the attack there would be the problem of radioactive fallout to contend with.

After the fallout danger ended, there would be the problem of rescuing survivors from the perimeters of cities, and the task of feeding and housing the homeless, perhaps by the thousands. We would be involved in all of these things.

We are some of the residents of the 90 per cent of the land mass of this nation that probably would be untouched by the blast and fire of the bombs themselves.

If there is fallout danger in our immediate area, we would be obliged to take refuge quickly, and to stay in it until we are told that the radiation has dropped to a safe level.

This in turn means that we should prepare the best shelter we can; right now. This can be anything from a deeply protected basement room to a typical root cellar in the back yard, covered with at least three feet of earth. That earth, you should know, would cut the radiation reaching you to 1/5000 of what it would be if you were caught in an open field.

In your shelter you should have an adequate water supply in covered containers, emergency lighting, food enough for every member of your family for 7 days, and a battery powered radio to maintain contact with Civil Defence authorities.

When you emerge you would have new Civil Defence responsibilities. You would have to help in the complicated task of finding homes for the homeless who have fled from target cities. These people would have to be fed, first on an emergency basis and then on a sustained program until they could return to their homes, if still habitable, or find more permanent quarters.

All of us would be expected to know our places in the organized Civil Defence effort that would be needed to rally to the help and support of the stricken cities.

Now, there isn't one of us who wouldn't be willing without hesitation to take his assigned part in all of these things. But would each of us know our parts in advance? Have we really been in touch with Civil Defence enough to know anything about its requirements?

We're busy people. We're industrious. We have wider interests and more opportunity to indulge them than most people on earth. We are often envied for these very reasons.

We're inclined to become so completely involved in our own affairs that we scarcely have time to think about dangers that may be distant in both time and space — but also could be very close at hand.

It's very easy to leave most of the thinking about our nation's protection to the men we pay to think about it, the soldiers and the scientists, the leaders and the planners.



We trust them. We confidently expect them to do their jobs as well as we do our own. And they do.

But we ought to listen carefully to the things they are telling us – listen, understand, and believe.

They have told us over and over again that if a fleet of bombers is airborne and pointed for this nation, the military cannot hope to stop them all.

There is no way at all to stop an A-Bomb or an H-Bomb if the pilot has a city in his bomb sight and releases his terrible weapon. But there are still ways to keep the enemy from accomplishing what he came for.

The people cannot be destroyed if they're not in the cities. That's the simple foundation of the evacuation plan, the soundest kind of concept for basic Civil Defence.

Sheltering, protecting and feeding these people is the second stage – and rallying to the rescue of the trapped and injured, and rebuilding the things we've lost, is the third.

The second and third stages are of particular interest to us, and should be our primary concern.

We have related possibilities to consider, such as the fact that an all-out attack on this nation might involve such auxiliary weapons as sabotage, biological warfare, and even gases.

A sound working knowledge of how to deal with these menaces can be acquired by all who take an active interest in Civil Defence training and take time to study Civil Defence literature.

Civil Defence people have worked out a set of guides designed particularly for farmers, but they apply to everyone in small communities to some degree at least. Let me read them to you:

First: Take care of yourself. In each rural family one person should be trained in Red Cross firstaid. One person should be trained in home nursing. Fire extinguishers and safety devices around the home should be checked regularly. Farm people should learn about biological warfare – how it can affect their crops and farm animals, how it can be detected and minimized. The family should have some type of refuge for protection from radioactive fallout which may result from atomic explosion miles away.

Second: Stay in production. This is particularly important for farmers, because regardless of food already stored throughout the country, new supplies will be needed to feed Canadians after an attack. Whenever possible, an auxiliary power system should be installed on a farm – a generator or batteries – because an attack probably will destroy the regular sources of electricity.

Third: Be prepared to market the farm's products. This is important even though the market is a refugee camp only a few miles away. Farmers, therefore, should take a close look at the highway system in their areas. Consideration should be given for extra gasoline storage on the farm, because an enemy attack could easily cut off gas supplies for transportation.

Fourth: Be prepared to accept refugees from cities. The Civil Defence plan for evacuation of target cities automatically carries Civil Defence to the smaller cities, towns, and rural areas. Non-rural groups should be ready to feed and shelter evacuees. Provincial and national resources will be placed at their disposal as soon as possible, but the initial job probably will be in the hands of the rural communities.

Fifth: Plan to help others. Plan to send support teams, such as firstaid and rescue squads, into the cities after attack.

That adds up to a sound program, and it's equally sound if you substitute the small businessman, or merchant, or almost anyone else for the word "farmer", because the basic principles of Civil Defence will apply to everyone in the country, regardless of where he is.

It is not a program to be heard and ignored, or to be read and forgotten. It is a program to be learned and remembered for a long time in the future.

There are only two conditions under which we could properly end our ceaseless working for Civil Defence:

First – If mankind could develop a social consciousness that would permit the whole world to live in peace, or

Second – If our military authorities could guarantee that no enemy could lay a hostile hand on this nation.

Neither of these is likely to occur within the foreseeable future.

We must stay with Civil Defence as it is our one stout shield in this time of peril.

Nobody can do it but us. Civil Defence is you and I and all of the other people of Canada. It's everybody's business.





# INTRODUCTORY SPEECH

No. 3

Time: 15 minutes

## NATIONAL SURVIVAL THROUGH CIVIL DEFENCE

Atomic attack on our nation is fully possible now. It could come with the A-Bombs of World War II, or larger. Or it could come with the H-Bomb.

It's wholly possible, but it needn't be fatal. What we need is the ability to absorb the strike no matter how it's delivered and spring back, whether we have lots of warning or none at all.

To live on as a nation we must be able to take an enemy's "Sunday punch" and fire our own. This makes two demands:

We must have the weapons for retaliation and the means to deliver them. That's the military.

We must have a solid surviving home front of support. That's Civil Defence.

In previous conflicts we have been among the world's greatest producers of the sinews of war. That is not going to happen again – if the enemy can prevent it.

Everybody at home will be in the front lines next time....if there is a next time. There will be a next time, only if a calculating enemy convinces himself he can knock out our government, our production, and enough of our people all at one time in a rain of nuclear terror.

A sound, solid Civil Defence might prevent him from trying it. With it, the country would be prepared to pick itself up and help the military return the mail.

What is Civil Defence? It's you and I....and everybody else. It's knowledge and training and work. It's a rugged will to give it everything you've got and more, no matter what happens. And we're not going to get by without it.

They've already put it squarely up to us, even if some of us haven't been listening very well. The Prime Minister himself and our top military men have been saying it over and over in a dozen ways, but all adding up to this:

Civil Defence is a plan for national survival....it's an equal partner of the military.

The military authorities say this:

"If war should come, the entire military effort will be concentrated upon the primary mission of defeating the hostile armed forces.

"In the event of an attack upon Canada by enemy aircraft, our military forces will do everything in their power to shoot down enemy planes. However, a large percentage of enemy aircraft would probably be able to penetrate our defences.

"A competent civilian defence must be prepared to function in order to return our workers and our factories to maximum production and restore communications in the shortest possible time".

There's nothing new about Civil Defence in action. It's just become so much more vital in our time to all of our futures.

Civil Defence a few generations ago was women and children moulding bullets, loading muskets, putting out fires from flaming arrows, and tending the wounded while their husbands and fathers did the fighting to protect them. Civil Defence was right on the spot of the fighting.

Wars kept getting bigger and bigger than the fort and stockade, but they also got farther and farther away. Now we've run the full cycle, and Civil Defence is right back on our doorstep....because that's right where a war of the Atom Age would be.

Once again Civil Defence is the people – today's descendants of the men who founded this nation, and it's now up to us to preserve it.

Of course, it's a little more complicated than bullet moulds, pails of water, and petticoats stripped for bandages. Civil Defence in our time is literally everything we have but the armed forces: The genius in the laboratory....the output of our plants....the metals of our mines....the leadership of our nation and provinces and cities....the coast-to-coast sweep of our homeland.

But above all things and underneath all things, it's the will and the strength of the people....and the spiritual power of the people.



It's one more thing. It's time. The time is now....today. There may not be enough tomorrows to get ready.

The question that needs to be posed right here is this:

Are we going to really wake up and do everything that cries to be done for defence and so discourage possible aggressors....or, by idleness and neglect, leave ourselves sitting ducks for enemy bombers.

On which of these two we answer and how well we answer could well rest the decision for peace or war.

The enemy is smart. If he can see 10 provinces with sound Civil Defence fully manned and equipped and integrated....with ample brains and determination and supplies to deal with any attack....solidly behind a military might tautly coiled for a lightning strike-back....he's going to think a long, long time before he moves. He might never move.

But if he can watch an unchanging, placid, complacent nation that doesn't want to be bothered about it all and stays under-manned, ill-trained, and unequipped in its Civil Defences, he might strike without warning. We'd be tempting goods for a plunderer who's already seized more nations and lands and people than you can count.

It's unthinkable that we could let indifference leave a choice. We need defence in depth in our homeland as it's never been built on any battleground.

As a nation, and a member of a group of allies, we've had an effective defence in depth in two world wars. The enemy was held at bay abroad until the Civil Defence might of our production could get into action as the other fist of the fighter.

Production told the tale in both world wars. But it can't do the job by itself again, because it will be the heart of the target. Today we can't buy time or geography.

Today we could suffer a hundred attacks in a single day, every one of them a hundred or a thousand times worse than the one before and every one of them within these 10 provinces.

That's the way war would have to come....because no aggressor could ever take a chance again on leaving intact our power to produce.

In a day of intercontinental bombers and city-destroying bombs, our industry is massed as a tempting target. Today's bombs aren't selective, and they bear no

shipping label. The worker would go right along with the works....and he'd have his wife and children with him, even if they were at home.

In point of fact, we're all clearly involved. Production everywhere depends on production someplace else. Wreck one unit and you stop another far away. There's no place to hide anything or anybody. But we can protect both people and things and our ability to fight....with a strong Civil Defence.

What do we defend against?

Nobody knows better than our enemies. It started at Hiroshima, with a single super-sun flash of light that changed the whole world's thinking in a fraction of a second's fury.

It had vital meaning for everything from aviation to zoology....aviation as applied to warfare, especially.

We had carried massive bombing to enormous figures in World War II. A thousand planes could put 100,000 tons of explosives on a target city in 10-ton packages.

Yet in that historic instant, one plane delivered much more in a single package.

So the war ended abruptly – but the bombs went on growing so that today we can deliver five or ten million tons of TNT explosive force in a single plane flying at speeds that would have been incredible in World War II. These are the H-bombs.

The menace is that others are building them too....and in theory at least, there's no limit to their size.

Fortunately we do not have an arms race alone. Right along with the multiplication of the power in bombs has gone a furious race to reach some sound defences against each new step-up in destructive power. There are even defences against the lethal companion of the big bursts....the massive radioactive fallout that is a threat to everyone a hundred miles or more downwind from a bomb-burst.

Civil Defence planning is anything but static. It's a constant process of revision and evolution. There never was and likely never will be a single master plan for everybody.

For a while we had "duck and cover" on the sound theory that proper shelters would protect from the blast and the heat and the light of an Atomic Bomb.



The H-bomb altered that.

The A-bomb, bad as it was, didn't dig gigantic holes in the ground, but the H-bomb does....so that shelters in a wide area around Ground Zero would be destroyed right along with surface structures.

The way Federal Civil Defence Co-ordinator, F. F. Worthington sees it now is forthright: "The people in our target cities must die – or disperse".

Federal Civil Defence provides guidance and planning. The provinces and the cities must do the work. The federal government can only help the responsible governmental units by pointing the way.

Civil Defence planning today must sweepingly embrace every person in the country, because no one can escape being involved in one of three things if one H-bomb ever falls on this nation. These are evacuation, shelter, and support.

If there is warning of an impending or possible attack, the enormous casualties of which an H-bomb is capable, could be reduced to a very low percentage if the mass of the people near the likely target point can be evacuated.

Then comes the problem of shelter....shelter in a wide and very long downwind path from the point the bomb explodes, because at varying times after the detonation, this will be the path of the deadly fallout. Even simple refuge can be enough to save most people in the zone of invisible falling radioactivity.

Finally there's support. The little town....the country farm....the remote ranch....the hidden mine in the hills – (these are most unlikely targets), but if the nation would live they must provide the fullest support.

The resources of men and materials on every square mile of Canada must be instantly ready if there's ever warning of attack....so that at the moment the last deadly flash dies, the work of fighting back can start at once.

What could happen has been charted a hundred ways, but tables of figures have no point here. What must happen if bombs fall is a rally of support from coast-to-coast for every stricken city and its people.

A whole nation will have to make living and relive again a very simple pioneering way of life, too long ignored: Help one another.

It will work, but we'll have to be ready....and we're not talking about some vague and distant time when you can sit back in a rocker and let the children do it.

The time for Civil Defence is now. No matter how late we might think it is.... it's probably later than that.

The framework is ready.

At the top we have the Federal Civil Defence organization. It's perfecting and standardizing the plans, providing some financial help to the provinces, stockpiling emergency supplies, standing ready with attack warnings for the provinces and cities, training key personnel, educating the public, and many other things that are common for all.

Rallied alongside of it are the major branches of our government, each with its specified responsibilities and the people to carry them out, to fight germ warfare on the farms, to restore highways between country and city, to meet manpower needs, to guard federal facilities, to provide temporary housing and shelter, and a hundred other needs.

There are the provincial co-ordinators to deal with smaller groups and with broadly similar problems and resources, welding them together if an enemy should strike.

There are the cities and towns that make up the provinces....and all the manifold things that each would do in an enemy-caused emergency.

They'll do them, that is, if their duty charts aren't mostly blanks. This brings it all down to you and to me. Only we can fill those blanks with the names of willing, able, and trained individuals. There's a place for everyone, and everyone will be in it, ready or not.

This is the choice: That we have enough names on the Civil Defence lists....or far too many needlessly on the casualty lists.

If this nation, indifferently prepared, suffers a massive atomic bombing attack, there won't be enough newspapers with enough paper to print just the names of the dead. There won't even be any physical evidence left of the millions who die.

Properly prepared and alerted, this nation can cut that loss to a fragment of its frightful potential. Right now, and maybe for all of our tomorrows, a vital Civil Defence can help to keep the peace. And Civil Defence is you....the final indispensable man.





# INTRODUCTORY SPEECH

No. 4

Time: 20 minutes

## WOMEN AND CIVIL DEFENCE

Women like bargains. To Canadian women this does not mean something-for-nothing, so much as it means the best possible value received.

Civil Defence, as a program, fills this bill.

Civil Defence is a bargain. There are few better examples of value received for minimum expenditure. A good Civil Defence cannot be bought with mere dollars. An effective and adequate Civil Defence home preparedness program is essentially the product of unceasing, determined and well-directed civilian effort, plus the acceptance of the individual responsibility of each woman.

Canadian women are part of our Civil Defence — a most important part. This reminds us of a sobering and revolutionary thought — the fact that if we should become embroiled in another large-scale war, every woman and every child will have practically the same duties as will every man — be the man civilian or soldier.

In our pioneer days, the wife and the daughter moulded bullets, loaded muskets, fought alongside their men, put out the fires started by flaming Indian arrows, and tended the casualties.

In World War I and World War II, the wife and the daughter kept the home fires burning, pitched in at the lathe to keep our production at peak, and served in the women's units of the armed forces.

In the event of another large-scale war, which may well be fought with the atom bomb, the hydrogen bomb, the guided missile and all the nuclear, biological and chemical weapons of the atomic age, the mother and housewife who worries over the safety of husband, son or brother at the front lines, will have an additional and more pressing worry. She will be concerned with the immediate business of protecting herself and her family from injury and death by these weapons of modern warfare.

Modern concepts of warfare bring war close to home. In a declared or undeclared war on our country an enemy may be expected to launch determined attacks on civilian and industrial target areas within our boundaries. The enemy will undoubtedly make an all-out effort to win quickly by smashing our morale and stopping our industrial production. This will most certainly be attempted through destruction of our cities with their concentrations of population and industry. The battle casualties will be the clerk, the postman, the mechanic, the paper boy, the housewife – people – your neighbours and and mine – your family and mine – quite possibly you.

In other words, "World War III", the war we are all trying hard to keep from happening, might reach "Main Street", and "Elm Street", right in your town, your neighborhood, your front and back yard.

Such attacks have not been practicable in our past wars. Canada has always enjoyed immunity from major attacks by foreign foes on its own shores. Today, such attacks are possible and if we are drawn into war, they are probable.

How has this come about? Why is it that our armed forces can no longer count on keeping our home front safe from enemy attack, as they have done for almost seven generations?

The answer lies in the inter-continental bomber, the long-range submarine, the guided missile, biological and chemical war devices and the new and more powerful atomic weapons.

In World War I it was not physically possible for an aggressor to attack our shores with any real hope of success. There were no planes that could bridge the vast reaches of our barrier oceans in a matter of hours, and no bombs big enough to do very much damage to our cities even if there had been aircraft capable of carrying them to our shores. The A-bomb had not been invented, and the H-bomb had never even been dreamed of. The atom itself was little more than a laboratory curiosity, and no one had ever succeeded in splitting one.

Now our national defence officials have disclosed to us that a single air group of modern planes can deliver in a single flight, more destructive power than fell on all of Britain in all the years of World War II. The aircraft designers have turned ocean miles into minutes and made a short flight path over the North Pole. Today every city on the continent is within range of a possible aggressor armed with the most destructive weapons in history; and there is no absolute military defence against air attacks – some planes would surely get through.



Civil Defence is our answer to the threat of atomic attack. Civil Defence can help to keep us at peace. An enemy is less likely to launch a sneak atomic attack on Canada if he is not sure of success. An effective Civil Defence lessens his chances of success by making the results of attack too doubtful to be worth the cost. Civil Defence is thus an aid in maintaining peace.

If our country is forced into another large-scale war, Civil Defence can help us to win that war. It will aid in keeping casualties and damage to a minimum, it will aid in maintaining our all-important morale and will-to-win, and it will aid in maintaining war-effort production.

In the meantime, Civil Defence serves as the co-ordinating agency for all relief efforts, in our peacetime natural disasters resulting from storms, floods, fires and earthquakes.

In simple terms, Civil Defence can be defined as the organization of the civilian population to minimize the effects of aggressive enemy action. It comprises all measures which can be taken to help people, communities, industrial plants, facilities and installations in the event of an enemy attack. Without it no nation could long survive in a modern war.

The Federal Civil Defence Co-ordinator has pointed out that Civil Defence is actually just the expansion of our already existing facilities. For example, we have our police department; for Civil Defence purposes we increase it with trained civilian auxiliary policemen ready to respond in any emergency. We have our fire fighting equipment; for Civil Defence purposes our fire departments have added additional emergency equipment. This equipment is dispersed at strategic spots ready for the day it may be needed. Ordinarily, few of us avail ourselves of first aid training. Today for Civil Defence purposes the number of trained first aiders has increased manyfold and must increase even more.

Authorities have emphasized from time to time that all our national defence efforts must be flexible. Defensive techniques must adjust themselves to the changing tactics and weapons of offense.

This flexibility can be seen in our Civil Defence program. We have long known for example, that the one sure protection against the atomic blast or burn, is space. The Co-ordinator sums this up in the simple rule: "When the bomb goes off, don't be there!"

Our earliest way of putting space between ourselves and an explosion was to duck behind something, or into something, such as a shelter. Our scientists discovered that a few feet of earth or concrete, or even a ditch or a wall, offered enough protection to double our chances of survival.

"Duck and cover" became the first accepted formula for living through an atomic attack. It promised originally to be a pretty good rule for our big city populations to follow, for we could count on little or no warning of an attack. People outside of the big cities did not worry much about the danger, because obviously the big industrial cities would be the logical enemy targets, and if you lived out in the country it was not very likely that you would be hit except by accident or so people thought.

Then the H-bomb came along, and we saw in a film called "Operation Ivy" how this new thermonuclear weapon could wipe a good-sized coral island off the face of the earth and leave a hole 175 feet deep in the ocean floor. The Chairman of the Atomic Energy Commission declared that just one such bomb could knock out any city, including New York, and naturally this called for new and improved plans to meet a greatly increased danger over a much wider area.

Well, space was still the answer; but this time it wouldn't do to go down into the earth in order to put enough distance between ourselves and the blast. It would cost too much and take too long to dig deep enough to find shelters for thousands of people, and not even a rich nation like ours could afford to move all its homes and mills and factories underground. The alternative was to plan for the evacuation of our men, women and children from the target areas when the warning sounded, and to gain the safety factor of distance by moving them right out into the country until the danger was past.

This called for more warning time than we could count on at the moment. Every effort is being made to assure from three to six hours of advance warning through the construction of radar networks and other devices.

Evacuation also called for Civil Defence co-operation on the part of people in small towns and rural areas who previously were not expecting to be directly involved in any possible attack. Naturally, you can't move people out of the cities unless you can get help in feeding them and housing them when they reach places of safety. However, this is a hard thing to put across to people who don't really believe their own skins are in danger. Most of us think of ourselves as being ready to help others if the worst comes to the worst — and we are — but we don't want to borrow trouble if we don't have to. We tell ourselves, "Sufficient unto the day is the evil thereof", and we let things drift until the problem strikes closer to home. Once the threat reaches our own doorsteps, instead of being merely something that might happen to the residents of Toronto or Montreal or Vancouver, we act promptly enough; and now our researchers have laid just such a threat at millions of doorsteps that are miles outside the range of direct H-bomb blasts.

Most of you have seen a picture of the familiar mushroom of the hydrogen bomb. What happens to that vast cloud?



If the bomb explodes close to the ground, hundreds of tons of atomized earth and stone and brick and steel particles are sucked up into the cloud, 40 or 50,000 feet into the air. These particles become highly radioactive. Much of this material spills out of the mushroom cloud around the point of explosion. The rest is carried along by the winds for some distance before it falls to earth.

This radioactive fallout can occur from an absolutely clear sky. You do not have to see the atomic cloud itself over your head to be in a fallout area.

Fallout will be a threat not only to so-called target areas, but to many smaller communities far removed from the cities under attack. To-day, we are all in this together.

Suppose you live in a small town squarely in the downwind path of the fallout? Well, the further away from the bomb you are, the more time you will have to take protective action. Or suppose that you get little or no warning, or that even your evacuation route lies downwind. Here is something to remember that may save your life:

Almost any kind of refuge can reduce the danger of radiation. An ordinary frame house, outside the area of blast and fire, will afford some protection. A basement shelter will provide even more. A simple underground shelter with three feet of earth covering will give you virtually complete protection from lethal radiation.

One thing we want to remember about shelter, however, is that once in it you may not be able to go outdoors for as much as 48 hours except for short periods. Radiation, contrary to some scare stories you may have heard, doesn't contaminate the countryside forever. Its lethal strength dies very rapidly, sometimes in a few hours. But it might be a couple of days or even longer before it would be safe to leave your shelter.

Every family that possibly can, should build a basement shelter or an outdoor shelter if they live in the so-called fringe areas of our major cities. Now, with the danger of radiation fallout over long distances, it is equally important that residents of suburban areas, many miles removed from major cities, also build a refuge. These shelters should be stocked with emergency supplies of essentials, such as blankets, first aid kits, and food and water supplies. A battery-operated radio will enable you to receive Civil Defence news and instruction. Home nursing, first aid and fire-fighting training will make you and your family safer wherever you live today.

But none of these things are any good unless people know about them and put them into practice. We have come to a time where ignorance is no longer bliss. The things we don't know can hurt us; and hurt us badly. We must understand about these threats to the world around us, and be ready to meet them family by family, home by home, neighborhood by neighborhood.

In peacetime, in a cold-war or an actual war, women can do almost any one of the various types of Civil Defence jobs. However, there are some Civil Defence jobs for which women are particularly well qualified. Some of these jobs require various degrees of training and in this respect it is important to remember that it is the trained volunteer who is of real value to home preparedness. It has been well said that "If we are attacked, there will be thousands of volunteers for Civil Defence immediately. But how much use will they be without training, without equipment, without organized direction?"

Some jobs for women in Civil Defence call for full-time services of those who are qualified to handle specialized tasks. Some demand no outside activity whatever. The home nursing course, for example, can be put into effect by any woman without setting foot outside her home.

There are places for women who are trained as professionals in certain fields, such as welfare experts. And there are places for women who have time for only the simplest ways of helping, such as washing laboratory equipment in an emergency, or answering telephones.

As Civil Defence continues to expand, it is likely that jobs will be adjusted to women — rather than women to jobs. We will learn as the British learned, that almost any housewife or mother is willing to do something if only someone in Civil Defence will take the time and trouble to find a spot she can fill.

The first step is to secure information on the operation of the Civil Defence program, on the rules of self survival, and as to where and what kind of volunteer assistance is needed. This can be obtained by you as an individual, or through your women's organizations, from your local or provincial Civil Defence organization.

Your first duty in Civil Defence is to act at once to educate your family in self-protection against modern weapons and to make your home as safe as possible against the dangers of attack. Get a copy of the Civil Defence booklets available through your local Civil Defence organization. You will find that there is a defence against every type of atomic-age weapon and that you can put it into action.

Your second duty is to participate in your community Civil Defence organization. Enroll as an individual or through your organization for training classes and for assignment to the Civil Defence service for which you are best fitted.

The role of women in rural areas has assumed a new importance with the changing concept of Civil Defence, made necessary by the H-bomb, which calls for evacuation and protection from radioactive fallout. Mass feeding, emergency housing and home nursing are particularly important in this respect.



Remember when you have trained your family and prepared your home you have more than doubled your chances for survival in an atomic attack.

When you have joined in organizing your community, you have given the community and the nation a far better chance to survive an attack. It will be too late to act after the bombs fall – act now. Civil Defence is your family responsibility, it's your job – no one else's.





# FOLLOW-UP SPEECH

No. 5

Time: 20 minutes

## THE H-BOMB AND CIVIL DEFENCE

Most of you undoubtedly are aware by now that the advent of the H-bomb has changed our thinking and national policy with regard to Civil Defence.

Until recently the policy was "Duck and Cover". In other words, based on the performance of the A-Bomb, it was believed that a person could survive an attack, even in a target area, by ducking into a shelter.

The more drastic performance of the H-Bomb has out-moded this policy.

On exploding, the Hydrogen bomb, (known to scientists as the thermonuclear bomb) creates a huge ball of fire. The point of ground directly below the centre of the burst is known as "Ground Zero", and several miles outward from this point, great destruction will occur.

There are two things you can do to protect yourself: be far enough away from the explosion to escape the effects or be in a covered shelter, strong enough not to collapse and crush the occupants.

As a result of the explosion, four dangers occur: heat flash; blast; immediate radiation (danger from dangerous rays similar to X-rays) and residual, or lingering radiation.

Heat flash lasts not more than a second. It can cause severe burns. The degree of danger depends on the distance the individual is from the blast. Heat flash, however, lasts such a very short length of time that very light material will protect a person from burns. A thin piece of ply-wood or a curtain will do. Heavy clothing will protect the parts of the body so covered. The answer to heat flash is "get under cover".



Heat flash creates another danger – it may set fire to easily ignited materials, particularly inside a house. Window panes painted with white wash, curtains or drapes will help prevent this. A tidy house, free from rubbish, cuts the danger.

Blast, which causes the collapse of walls and floors and hurls broken glass and other objects through the air may cause many injuries or deaths. Shelter will give protection, provided it is strong enough and is far enough from the ground zero. Home basements will afford reasonable shelter if they are properly prepared. The object of the shelter is to prevent people in it from being crushed if the floor collapses, or struck by flying debris, caused from the blast. There are several effective types of shelters:

The basement lean-to shelter. This is very simple and inexpensive.

The box, or corner-room shelter. This is a little more expensive.

A concrete shelter, which is best built when the house is being constructed. This normally gives excellent shelter. Where there is no basement, a covered trench shelter will suffice.

When the bomb goes off dangerous rays are given out. They last for about 90 seconds, and are most intense during the first few seconds following the explosion. Gamma rays will penetrate solid walls, but lose their strength in doing so. Distance also reduces the effects of Gamma rays. A strong enough dose of these rays will cause sickness and even death. Protection against dangerous rays depends upon the thickness and density of material. Steel is more effective than concrete. Concrete is more effective than earth. But, since great thickness of any material is very effective, the basement or trench shelter, offers the greatest protection of all.

Residual or lingering nuclear radiation occurs when materials become radioactive (that is, when they are made to give off dangerous rays) and remain for a considerable length of time. This type of radiation occurs in its most intense form when the fire-ball touches the ground. The ground actually touched by the fire-ball may remain dangerous for a long period of time – possibly years. The force of the explosion and the great heat of the fire-ball pulverizes thousands of tons of brick, stone, steel and earth. The fire-ball rises very quickly after it is formed, and sucks high into the air this mass of particles known as “radioactive dust”. The fire-ball may go as high as 70,000 feet. Then, gradually, the radioactive dust will commence to fall to the ground. It will be caught up in the air currents at these high levels, and may be carried for many miles, depending on height and the strength and direction of the wind at those levels. The dust may drift as far as 200 miles, and cover an area up to 40 miles in width. This is known as “fallout”. It is extremely dangerous while it lasts (which may be up to 48 hours or more). Fortunately, however, its strength disintegrates or decays very rapidly.

Protection against the danger caused by this shower of radioactive dust is to leave the area before the fallout occurs or to stay under cover until the radioactivity has decayed enough to make it safe to come out. You will be told when it is safe by radiation monitoring teams of your civil defence organization.

During the period of fallout and afterwards until the radioactivity has decreased, it will be very dangerous for people to be out-of-doors, or even in buildings where the walls and the ceilings are thin, such as ordinary frame houses.

Refuge below ground is by far the best.

The old-fashioned root cellar, with about 3 feet of earth on top, or a covered trench shelter will give complete safety

The home basement may be expected to give about 90% immunity. Even this may not be sufficient unless, for example, the cellar windows are shielded by sandbags or earth. Otherwise, Gamma rays may penetrate into the house and through the wooden floor that forms the ceiling of the basement. If the surface of the floor is covered with sandbags it will keep out the Gamma ray. Since this may be impractical in many cases, it is suggested that a box-type shelter be erected so that two sides are against the concrete walls of the basement. The top should be a ceiling that can be sand-bagged, as should the sides. Paper (such as books where the sheets are close together) provides excellent shielding from radiation so books, old magazines or catalogues will give additional protection.

The farmer with livestock has a more difficult problem than the urban dweller, if he wishes to save his livestock. On warning of probable fallout all livestock should be herded into the barn and not allowed to graze in the open until it is safe to do so. This means that the livestock must be fed from food stored safely in the barn. Arrangements must be made for safe water and, in the case of dairy cattle, normal milking should take place. During some portion of the fallout period, some member of the farmer's establishment would need to live in the barn. A safe place, similar to the basement shelter, should be built here.

Decontamination of tools, vehicles, etc., after fallout is a problem. Some of the important factors to consider are: if sufficient time is allowed, particles will decontaminate themselves, flushing down with water is one of the best means of decontamination. If the street is flushed down, and the water is carried off by sewers, care must be taken that the outlet will not contaminate bodies of water such as rivers. If the waste goes into a sewage disposal plant, the plant will be contaminated for some time and this, therefore, must be avoided. The rule is, when using water, know where the drainage goes.

On machinery parts, under cars or on farming implements, where there is oil and grease, water will not do. Here the job can be done by using steam under pressure. If this is not available, it may be necessary to wait for the radioactivity to decay. A vacuum cleaner will pick up dry dust satisfactorily, but the dust in the bag must be destroyed by burying it in the ground.

Contaminated clothing should also be disposed of by burying. In some cases washing, (if it can be done without bringing the clothes into contact with the body) will serve, but using the washing machine is not advised.

A bulldozer can be used to clean the surface of the ground and push contaminated materials aside where they can be covered with fresh earth.

When working in areas of contamination, particularly if the area is dusty, it is wise to wear some protection for the eyes, nose and mouth. Tight-fitting goggles and some form of respirator – or even a wet cloth covering for the nostrils will help. It is also wise to wear special clothing when working in such areas. Cotton coveralls, cotton or canvas bootees taped around the trouser leg, gloves, and a tight-fitting head covering like a surgeon's cap are useful. After working in a dangerous area, such clothing should be destroyed.

Personal decontamination is a matter of washing. This means scrubbing the whole body with a detergent and water – with particular attention to the hair. If the hair is oily, it will be more difficult to decontaminate than otherwise and may require several washings.

The fire-ball in an H-Bomb explosion may be more than three miles wide, so unless the explosion occurs two miles or more above the ground, the fire-ball will contact the surface of the earth. It is expected that H-Bombs will be set so that the explosion will occur within two or three thousand feet of the surface. If this is the case, the areas of extreme damage may extend out from ground zero to a distance of five or six miles.

Take a map of your city, select some point which you think would be a suitable "Ground Zero", and draw a circle representing three miles and another one representing six miles, then you will have a good idea of the extent of damage created by an H-Bomb. You can reasonably assume that if you were within the first circle, your chances of living are practically nil. In the second circle, there may be some chance of survival if sheltered sufficiently. Therefore, your safety lies in not being in these areas when the bomb explodes. Since, however, you do not know where the enemy intends to explode the bomb, or whether the bomb-aimer will be accurate, it is important to get well out of the centre of the city.



This unpleasant but factual situation has been fully recognized by the civil defence authorities who have drawn up a basic plan for cities which might be likely targets. This is a plan of evacuation. It works, briefly, as follows:

PHASE A: If there is enough warning that war may break out, a large number of people (about one-third of the population) should be evacuated to communities at considerable distance. These "priority classes" include children up to high school age, mothers with small children, expectant mothers, the aged and infirm, and patients from hospitals or similar institutions. In addition, a few key governmental and industrial experts will be moved to outlying areas. From six to twelve hours will be necessary for this phase.

To do this successfully there must be a complete registration, by Civil Defence, of everyone in the city. If you belong in a priority class, you will be registered accordingly. Where possible, people in priority groups should move out voluntarily to country cottages or to the homes of relatives and friends in safe areas.

PHASE B: The second step is called a "planned withdrawal" of all the population, when attack appears to be reasonably certain. This is done by using every available means of transportation. Motor cars, buses, trucks, trains and boats will be used. The city should be divided into sectors, and each sector given an exit route. These exit routes must have no cross-traffic and no incoming traffic for a distance of 15 miles or more. In this way most exits will have two or more traffic lanes, all moving outward, at about 25 miles in the hour. The people are picked up at assembly points just off the exit route and all vehicles are to be full.

Where practical, people moving out under "Phase B", should bring with them supplies such as blankets and food. The wise householder or worker would keep a small kitbag ready to carry with him. Left behind will be a small garrison group such as police, civil defence wardens and others necessary to guard against possible looting. This rear-guard will move out of the down-town area on a given signal, in the hope that speed and an open highway will get them clear of the effects of the explosion. This phase should be completed in a maximum of three hours.

PHASE C: Is the period after the evacuation, and after the attack has taken place. Hundreds of thousands of people will be scattered outside the target city in small communities for a distance of a hundred miles. A man who was working in the east section would have travelled in one direction and his wife, at home in the west section of the city, would be far away. They must be brought together at the earliest possible moment. Industrial workers, if their factory is destroyed, must be sent to places where a similar industry is still operating. This is a huge task, but it is the only plan under which the Civil Defence authorities and workers can save the nation from total destruction.

PHASE D: The final part of the Civil Defence plan is that known as "rehabilitation". This means re-establishment of families into safe communities, the restoration of public services and partially destroyed industry and the re-building of all those things necessary to continue the struggle to maintain our freedom.

This work will not be done by Civil Defence alone, but by all agencies of government and with the co-operation of all the people of Canada. For in this way alone will our nation survive and our people remain free.



# FOLLOW-UP SPEECH

No. 6

Time: 15 minutes.

## EVACUATION AND FALLOUT

No doubt most of you present have heard a great deal of the devastating effect of an H-bomb when detonated. Fortunately, to date one has not yet been exploded over an inhabited area. It has been tested over an island in the Pacific. The result was the disappearance of the island leaving a crater 175 feet deep in the rocky floor of the ocean.

Probably you have heard also of the delayed secondary results of this colossal weapon, from radioactive particles of dust carried for hundreds of miles across the sea.

This is known as Fallout — the subject we wish to discuss in this talk.

Serious as its effects are, there is protection against fallout, unlike the primary effect of the H-bomb which nothing living or perishable within its effective range can withstand.

The only sure way of surviving an H-bomb blast is not to be there when it happens. That is why Evacuation has been adopted as government policy. And the only way to make evacuation successful is through an efficient Civil Defence and effective planning in which the entire population co-operates.

This means that logical target areas must be evacuated as completely as possible if attack threatens.

We have every reason to believe that we will be given the opportunity. The Royal Canadian Air Force is constantly improving its strategic warning systems and its forward lines of detection devices.

At present, we have a possible minimum of three hours warning and this is gradually being extended. With a properly organized evacuation system in effect, this would give us the opportunity of saving millions of lives. To achieve this, we must get the urban populations out into the country.



Presuming we can accomplish this successfully, we still are faced with the problem of fallout.

Fallout actually is particles of matter in the air made radioactive by nuclear explosions. When such a bomb is exploded close to the ground, thousands of tons of atomized earth, building materials, rocks and gases are sucked upward, sometimes to a height of 80,000 feet or more. They help form the mushroom cloud which belches upwards and outwards so awesomely and so vividly following the detonation.

Some of these radioactive particles spill out into the immediate area of the explosion soon after it occurs, but others may be carried by the upper winds for many miles. Sooner or later, however, they settle to earth. This is called fallout.

Near the centre of the explosion radioactive fallout is highly concentrated, its density diminishing the further it recedes from the vicinity of the detonation.

Thus, people being evacuated from a stricken area may be subject to this secondary disaster as well as people dwelling in the localities over which the fallout passes.

If you are exposed to it long enough, it will hurt you. It may even kill you. The same applies to a farmer's livestock. It could settle anywhere. It is subject to the vagaries of the upper winds so that no locality, however remote, can be considered immune to fallout within a distance of up to 200 miles downwind from the blast and in a path up to 40 miles wide.

This is the delayed punch of the H-bomb.

But it is a punch which can be countered fairly effectively.

Shelter, therefore, becomes complementary to evacuation in this phase of our Civil Defence.

It is considered essential for survival that anyone living 15 miles or more from the natural target point of any city can best protect himself by providing a home shelter. Farmers should also arrange refuge in which to herd their livestock in case of danger.

Even staying indoors with outside doors and windows shut can afford some protection. A refuge in the cellar of a home can cut the effect of radioactive fallout by as much as 90 per cent. An old-fashioned root cellar with three feet of earth on top can cut the radiation to 1/5000 of its original strength.

It is a function of Civil Defence not only to speed planning for the evacuation of every target city but to complete the studies that will show where shelter is available and where it must be provided.

This is Civil Defence at the federal, provincial, and municipal levels.

At the individual level it is the responsibility of every citizen to learn what he needs to do and what supplies he ought to have for himself and his family in the days after the attack.

Federal Civil Defence has provided a guide in five simple steps for protection against radioactive fallout. These are:

Prepare a refuge area in your home, whether you live in a city or the country, if you live 15 miles or more from a probable target centre.

Stock your refuge with a seven-day supply of emergency food and water for each member of the family.

Keep a battery-operated radio for obtaining outside information.

Don't become panicky and flee aimlessly. Radioactivity diminishes rapidly, and you will be safe in reasonable shelter until Civil Defence officials have determined that the danger is past.

If you have been exposed to fallout, remove outer clothing and thoroughly wash the exposed parts of the body. Unless you have been exposed to serious contamination, it may not be necessary to destroy or discard the clothing, since it can be made safe by laundering or simply not using it until the radioactivity has decayed.

If an individual is not involved in either an evacuation or shelter situation, he will still be essential to Civil Defence because there is a third tool with which we have to work in surviving atomic attack.

This is support. From all areas untouched by bombs and free from fallout threat, support must be rallied in strength to help the recovery of those whose cities have been bombed.

Post-attack support will be every bit as important to our recovery as space and shelter will be to our survival.

Those who must flee before the bombs, need to be housed and fed, protected and restored.

But this is only the final phase and one that will be without purpose if the first two tools of Civil Defence are not properly used.

Civil Defence is everybody's business. No one living in this country can properly escape an individual responsibility to help himself, his family, and his nation to survive.

No one will escape involvement in one or more phases of Civil Defence if attack comes. This is beyond question.

The only unanswered questions now are: Will we be ready? And, how soon?

We are an intelligent and ingenious people. All we usually need is an understanding of a problem, a willingness to work to solve it, and the will to carry out each assignment to reach that solution.

The best way to be ready is to take an active part in your own Civil Defence organization. There you will learn the things you need to know to survive an atomic attack.

It is vital that we all know, now.

It will be too late when the H-bombs fall.





# FOLLOW-UP SPEECH

No. 7

Time: 20 minutes

## ORGANIZATION OF CIVIL DEFENCE

Civil Defence planning in its present phase began in Canada in November, 1948. During the thirties a civil defence organization, under the name of Air Raid Precautions, came into operation and continued during World War II years, terminating in 1945.

In November, 1948, a Civil Defence Co-ordinator was appointed to advise the Government on what measures should be taken to protect the civil population in the event of war.

The Department of National Defence was made responsible for the Civil Defence organization until 1951 when this responsibility was transferred to the Department of National Health and Welfare.

Organization of Civil Defence has been made necessary for the following reasons:

Changes in the technique of conducting warfare;

Ranges of aircraft and missiles are such that the North American continent no longer is immune from attacks;

The country is too extensive to protect fully with military defence measures;

A population which is prepared for disaster is more likely to survive; and

The unfortunate frequency of large scale natural disasters.

We may define Civil Defence as comprising all those measures other than military defence, to minimize the effects of disasters. In time of war it includes all those measures which will maintain the population's will to win or survive, so the government may continue to govern and industry to maintain production.

While the functions and principles of a Civil Defence organization remains the same in any country, there are two general ways in which the program can be developed. The first is where there is established a highly centralized organization provided with the legal authority to order, command and dictate to all other branches of the government and the people. The second, which is more suitable to Canadian conditions, is where the organization embraces each level of civil government and utilizes all existing agencies to fulfill the functions of Civil Defence.

The basic principles upon which Civil Defence in Canada are established are:

The utilization of existing services whether they are government or non-government agencies;

The sharing of the responsibility for Civil Defence by each level of government; and

The natural instinct of self-preservation which exists in each human.

Civil Defence measures, to be effective, that is to reduce casualties and damage, must be prepared before the time of disaster.

Since the advent of the Hydrogen bomb, or H-bomb, Canada's Federal Civil Defence policy has been based on evacuation and reception.

The target areas designated include most of Canada's major cities, based on density of population and industry.

The Reception Areas are established beyond the target zones.

The current Federal planning is built around one single plan, divided into the following four phases:

Phase A – Pre-attack evacuation of target areas, of women, children, aged and infirm, hospital patients, etc.

Phase B – Planned withdrawal of the remainder of the population of target areas upon the Alert signal.

Phase C – Return to target areas, when declared safe after bomb burst, of rescue crews and engineering services.

## Phase D – Aid and rehabilitation.

In Phase A the non-essential section of the population would be moved to prepared havens some 100 miles radius beyond the approximate point of explosion. Phase B would see the remainder of the population moved into the Reception Area established beyond the 25 miles radius of the danger point.

The evacuation plan was not chosen as the best of several alternatives. There is NO other alternative. So destructive is the power of the H-bomb that all life and property within a few miles radius of the point of explosion would be completely destroyed. The only chance of survival, then, of those who normally inhabit this danger zone is NOT to be there when the bomb bursts.

In the non-target areas, refuge is required to protect the population from the dangers of fallout. This is the delayed action result of an H-bomb explosion. It spreads over the countryside in a long cigar-shaped cloud composed of dust particles sucked up after the explosion and made radioactive. The cloud is subject to the wind-current and the dust particles are shed along the path of the cloud's movement, endangering all life, food, water and crops.

Other Civil Defence measures include:

The Warning System – there has been developed across the continent three air defence warning systems which will provide adequate information and time to carry out evacuation processes. These systems are expected to provide Civil Defence authorities with a maximum of three hours warning of impending attack.

Dispersal of Industry and Populations – such a project cannot be carried out in a short period of time, but it should be adopted as a long term project. It would ensure that no one single area would have an over-concentration of either population or industry.

Control of Illumination – no policy has been developed with respect to control of lighting, however in time of a national emergency it must be expected that certain control measures would have to be adopted.

Organization of Civil Defence Forces – each area in the country must ensure that sufficient trained Civil Defence workers are available to cope with actual disaster conditions.

The Federal Civil Defence organization assumes the following responsibilities towards the implementation of a Civil Defence program: organization of Federal Government departments; co-ordination of Provincial Civil Defence plans with the National Survival



Plan; co-operation and co-ordination of plans with the United States; operation of a Canadian Civil Defence College to train Civil Defence specialists; establishment of the National Warning System; stockpiling of essential supplies; provision of specialized equipment; provision of training literature; assistance to provinces in hose standardization programs; financial assistance to provinces in special Civil Defence projects; establishment, in conjunction with provinces, of a system of compensation for injury to Civil Defence workers, and research in Civil Defence matters.

Some of the major provincial responsibilities are: assisting communities in the development of Civil Defence programs; planning and co-ordinating the Civil Defence plans for the province; training within the province; providing the necessary legislation to enable the legal establishment of Civil Defence; and in conjunction with federal authorities to co-ordinate plans with neighbouring provinces and neighbouring states of the United States.

Each local government is responsible for the organization and training of Civil Defence workers, and for the development of a plan for the area.

The first step the community should take in developing a Civil Defence program is to organize an Executive Committee for Civil Defence. This committee is in fact a committee of the municipal council, and its membership should consist of elected officials of the community. The Executive Committee is the body which is primarily responsible for approving Civil Defence projects when they are developed.

In small communities it may not be necessary to establish such a committee, but some elected official should be appointed from council to be their representative on the Civil Defence Planning Committee.

In metropolitan areas the Executive Committee should consist of elected representatives of each of the communities making up the metropolitan area.

Rural areas, as distinct from large communities, which are developing area organizations, should form an Executive Committee in a similar manner as recommended for metropolitan areas.

One major responsibility of the Executive Committee is the appointment of a Civil Defence Co-ordinator. Depending on the size of the area to be organized, this official might be full or part time. His status must be the equivalent of senior municipal officials.

Each civic department is responsible for the development of its disaster plans. The Civil Defence Co-ordinator is responsible for the co-ordination of these plans into a

single area plan. In order that these plans be developed it is necessary to establish a Civil Defence Planning Committee.

The composition of this committee will be from each of the services which are required to conduct disaster operations. It will include local government officials together with officials from non-municipal services, e.g. transport, communications, public information, etc.

In large areas it may be found necessary for each service representative to establish Working Groups or Committees which would be responsible for the development of the various parts of the service plan. For example, the Medical Officer of Health might set up working groups to deal with public health and sanitation; special weapons defence; emergency accommodation; casualty care; hospitals, etc.

Some large urban areas have found it advisable to establish an Advisory Committee which does not have executive functions but is set up to advise on matters which are directed to their attention. This committee might be set up by the Mayor or the Civil Defence Co-ordinator.

Planning at the local level entails six main features. The organization of the Civil Defence services by the recruitment of volunteers to work with existing civic services; the training of existing civic services and volunteers in their duties; liaison with neighbouring Civil Defence authorities; conduct a resources survey of equipment and facilities which could be made available for Civil Defence purposes; the compilation of an urban characteristics analysis of the area; and the preparation of an operational plan for the area.

It has been recognized that certain areas in the country are more likely to be attacked than others. These areas have been designated as Target Areas. For evacuation purposes all residents residing within 15 miles of probable ground zero are considered to reside in a Target Area.

An area lying beyond 25 to 50 miles from the Target Area has been designated as the Mutual Aid Area and will be responsible for the reception of evacuees who are evacuated during a planned withdrawal. This area will also be responsible for the provision of mutual aid to the Target Area should it be attacked.

The area which extends beyond the Mutual Aid Area, or from 50 to 100 miles, has been designated as the Reception Area. This area is responsible for the reception of people who have been evacuated from a Target Area during the pre-attack phase. In addition, this area must be prepared to provide highly skilled and specialized assistance to the Target Area in the event of attack.

The problems of organizing communities in each of the above mentioned areas will differ according to the designated role of the area. For example, although each community or area must organize components of each service the strength of Welfare Services will be greater in the Reception Area and Rescue might be fairly small.

The organization of Civil Defence in any area consists of:

A Headquarters Service comprising of intelligence, information, transportation, communications sections, etc.

A Fire Service – the existing service expanded by trained volunteers.

A Police Service – the existing service expanded by trained volunteers.

A Health Service – comprising all health and medical services available in an area, and strengthened by trained volunteers.

A Welfare Service – comprising all voluntary agencies with welfare functions, trained volunteers, and existing municipal welfare services.

An Engineering and Public Utility Restoration Service – comprising of all existing civic engineering and utility personnel, and private contracting firms which are equipped with engineer personnel and supplies.

A Rescue Service – comprising solely of trained volunteers.

A Warden Service – comprising solely of trained volunteers.

It will be noted from this outline of the services which are required for Civil Defence operations that a nucleus of the organization actually exists in any organized local authority area. The existing civic services are geared for everyday natural occurrences, but they would not be sufficient for major disasters. Consequently they must be expanded by the utilization of trained volunteers.

The object of this address has been to outline briefly the planning and organization procedures which are required for Civil Defence. Civil Defence is not to be considered as something apart from local civil organizations, but is rather a logical and necessary extension of existing services and facilities to cope with emergencies which are beyond the capabilities of existing civic services.





# FOLLOW-UP SPEECH

No. 8

Time: 20 minutes

## CIVIL DEFENCE SERVICES

While introduction of atomic weapons has required revision in the planning of operational employment of Canada's Civil Defence services, the main guiding principle has remained. That is, while it is essential to implement plans to meet the greatest threat, they must be equally adaptable to lesser situations, such as use of conventional weapons. In a word, the principle underlying all operational plans and development of standard operational procedures should be flexibility.

To-day, of course, the major threat is the possible use against us of the hydrogen bomb — many times more powerful and destructive than the first atom bomb which wrought havoc over Hiroshima and Nagasaki.

The H-Bomb is a two-pronged threat — destruction of the target it hits and menace to communities within the track of its radioactive fallout.

Nevertheless, Civil Defence authorities are agreed that the peacetime organization established to meet the threat of A-Bombs and more conventional type weapons should be continued.

While some variation in operational disposition and, to a limited extent, of function, has become necessary, they consider the present designation and composition of the several services as sound for the purpose of organization and training.

It is now realized, for example, that no Civil Defence units should be located in, or remain near any area of major destruction. If they did so, unquestionably, they would be destroyed.

Civil Defence authorities are convinced that if you live in a large city which is a potential target area, there is only one sure way of survival if the H-Bomb should go off — that is not to be there when it happens.

They explain that within a radius of three miles of the blast there would be no chance of survival and even within a radius of several more miles there would be little chance of survival. Shelters would be of no avail in this area. The only chance is to have evacuated the area before the blast .

But for training purposes, however, they point out that it is best to locate Civil Defence units in a suitable building, centrally located in the area in which its members reside. This is necessary in the interests of volunteer training in order to cut down travelling time during meetings and exercises. Only in this way is it possible to ensure good attendance for unit activities.

Target Area directors, therefore, should keep in mind that such installations are training centres for peacetime activities only. Where these centres are suitably located they may also be included in the operational plan as action stations, assembly points or rendez-vous, to which volunteer members would report on receipt of a warning.

This rule, the authorities believe, applies to all the services with some variations according to the functions of each.

It is presumed most of this audience understands what I mean when I speak of Phase A or Phase B, but for the benefit of the few who may not, I hope you will permit me to give a brief explanation.

When we speak of Phases A or B, we are referring to evacuation. Phase A is a pre-attack evacuation plan. It calls for evacuation from a target area of selected groups of the population, children, old people, hospital cases, pregnant women, etc., prior to the outbreak of hostilities. Phase B is a plan of withdrawal for the remainder of the population during the period of impending attack.

Generally speaking, on receipt of yellow warning (sent to key Civil Defence personnel indicating attack by hostile aircraft is imminent) or public action signals, all Civil Defence members not already in position as a result of implementation of Phase A should proceed immediately to their assembly points or action stations. Here they would pick up equipment, receive final instructions and proceed as quickly as possible to their duty locations or battle positions.

To illustrate the foregoing principle, let us examine the situation in more detail with regard to the various services.

We find that the Wardens must function in the service of public education before the event and, as Civil Defence officers, during and after the event. Wardens, therefore, should be selected from local area and community organizations.

The reverse situation is true in the case of the health services. Since the bulk of the population, if not all, will be evacuated, it is obvious that the operation of the welfare organization within the target area is rendered unnecessary. On the other hand, a tremendous welfare problem will be created in the reception area. This will involve the registration, accommodation, feeding, clothing, personal services and redistribution of an entire urban population — truly a problem of the first magnitude, far beyond the resources of the small communities which must be prepared to receive vast numbers in addition to their own residents. These services in the small communities, therefore, must be reinforced and supplemented by trained welfare workers who can come only from the larger centres.

This necessitates establishment of a full-fledged welfare organization within the target area. Present welfare centres, therefore, can continue to serve a useful and necessary function in peacetime for recruiting, organization and training in a community sense.

Headquarters Services involve all personnel required in the operation of Control Centres and other service headquarters. Such personnel on the yellow warning or public Alert signal should report immediately to a rendez-vous previously designated where they would pick up transport and be moved outward to their battle stations in Control Centres. The detail of this assembly and movement would form part of the operation plan. It must be assumed also that during Phase A and possibly before, at least a nucleus of Headquarters Services should be mobilized on a full-time basis.

Action depots for the Rescue Services should be disposed outside the D ring and possibly at greater depth, within the mutual aid and supporting areas, i.e., within the first 50 miles.

However, there seems no point in having rescue personnel assemble there to wait for the event before they come into action. They are trained leaders and can perform a useful function in support of the general plan by assisting the Warden Service in the areas in which they reside. Accordingly, their disposition should be worked out either on a team or squad basis per warden post area or district, or alternatively as individuals wherever they happen to be when the movement begins.

Their duties in this sense will be similar to the wardens, working in co-operation with them in accordance with a previously worked out plan if possible. As the evacuation proceeds and towards its conclusion, the rescue parties should follow through, tailing off when they reach their action depots and waiting there until the need for their special function develops. Adequate shelter must be provided for them at these points.

On signal and in accordance with the plan, all Fire Service auxiliaries should proceed to designated fire stations or other points. All fire apparatus should move outward



rapidly to previously designated emergency action stations. These should be located outside the D ring on the fringe and should be in covered positions such as protected basements of large buildings with suitable ramps, or on hard standings with cover for personnel in shelters or trenches. The object of this manoeuvre would be to preserve the existence of valuable fire-fighting resources which, if destroyed, could not be replaced.

These operational locations may also be designated as meeting or assembly points for supporting elements of the Fire Services within mutual aid and mobile support area, in accordance with the Regional, Provincial or Area Fire Services Operational Plan.

Undoubtedly, Police will have to become activated during Phase A, with certain preparations being undertaken in regard to preparation or assembly of traffic control markers, signposts, direction indicators and the like. Furthermore, some, if not all, auxiliaries should have been mobilized during this period. Therefore, as soon as yellow warning is received, Police should automatically be moved to their evacuation plan battle stations which will be mostly at highway traffic control centres, regulating points, etc., in accordance with the Traffic plan.

If possible, these points should be partially manned during Phase A and communications established. The plan should provide notification to the Warden Service in regard to what assistance might be required from them at important intersections in support of the traffic movement. Also, valuable police equipment such as 2-way radio cars and other special devices should be dispersed to the outer periphery of the city following a yellow warning. It may well be that most of this equipment will be needed for communication purposes at highway traffic control centres at the sector and sub-division level.

Under Health Services planning, it is hoped that the bulk of the hospital population will have been evacuated during Phase A. This will include hospital staffs, nurses, medical aids and equipment to emergency and improvised hospitals established well outside the target area.

In addition, casualty services must be re-organized on a mobile basis. During the re-entry period (Phase C) mobile units, as the situation permits, would establish themselves as Advance Treatment Centres as close in as possible. Assuming the successful accomplishment of Phase B evacuation, the bulk of the population will have been moved back into the Reception Areas. Therefore, the main effort for the mobile elements probably will be in that direction rather than within the confines of the Target Area where survivors will be few.

In Target Areas the functions of the Engineer and Public Utility Restoration Service are:

Restoration of essential facilities and public services.

Opening-up of debris-blocked streets for passage of fire, medical, rescue, police and repair vehicles.

Emergency repair of water and sanitary services.

Emergency repair of streets, bridges, viaducts, etc.

Shoring-up or demolition of badly damaged structures.

Removal of debris and rubble.

In Non-Target Areas, the functions of the Engineer and Public Utility Restoration Service will be:

Placing of available engineering and public works, resource of manpower, equipment, facilities and supplies at the immediate disposal of areas which have sustained enemy attack.

This service must also be organized and prepared to handle large-scale emergencies within their own locality.

In case of disaster, Civil Defence Transportation will be called upon to perform many services over and above normal business. The transportation organization for Civil Defence must be a mobile, highly-integrated organization, peopled to deliver quickly and in adequate volume the special services needed for a stricken area.

Civil Defence Transportation authorities cannot assume that adequate transportation services will be readily available. They must plan, co-ordinate, organize and train personnel if these services are to be adequate when required.

In an emergency, all types of transportation must be used. They must be used comparatively and not competitively. Transportation systems now highly competitive will find it necessary to pull together in one harness. No resources, from the locomotive to the bicycle, may be overlooked. For maximum aid, resources must be moved not only from the nearby support areas but from long distances. Proper planning will make organized Civil Defence elements, equipment, material and supplies available from non-target areas.

Civil Defence Communications Services is a subject of continuous study. At present, Air Defence warnings are sent from Air Defence Control Centres to Main Key Points by a direct line and are then advanced to selected Key Points by a toll priority call.

At these Key Points, the public is alerted by means of sirens which warn them to implement their Civil Defence plan.

Considerable revision to this scheme is now under consideration. Basically, Civil Defence must use existing civil communications networks, wherever possible, including telephone and radio systems.

This talk has been designed to give you a quick perspective of the various services which comprise Civil Defence and which, when properly co-ordinated, make it work.

The functions of these services have only been outlined briefly here. In several cases these services are the subjects of other talks. The object of this presentation was to emphasize how each service complements the other and how essential to the success of Civil Defence is proper co-ordination of all services.





# FOLLOW-UP SPEECH

No. 9

Time: 25 minutes

## THE WARDEN SERVICE

Tonight (today) I am going to outline for you the organization and functions of the Warden Service – the toughest and most vital service in Civil Defence.

The aim of all Civil Defence measures is to save life in the event of emergency.

All services within the Civil Defence corps are organized to achieve this aim. When disaster strikes, however, the main responsibility for implementing public protection measures rests upon the shoulders of the warden.

In any future war the civilian population definitely will be in the front line, and in the first days of such a war probably will be more involved than some components of the armed services. Although the three fighting services are organized for direct combat with the enemy, the fourth service in our National Security could lose the war for us if it is not well organized and able to operate efficiently.

In the past, the warden service has been looked upon as the service which acts as the guide, philosopher and friend of the general public. This role, in the light of the newer and heavier weapons of mass destruction has become even more vital.

A good warden organization makes Civil Defence strong at the neighborhood level. Self-protection is the first law of Civil Defence, just as self-preservation is the first law of nature. To be effective self-protection must be organized. This is done through warden leadership. Each neighborhood must have its own disaster plan.

The wardens' main functions are:

To act as guide for the un-organized public.

To assist other Civil Defence services with the development of their plans.

To act as reporting agent.

To initiate remedial action when necessary.

To execute evacuation plans of the post areas.

Flexibility and mobility will be the keynotes to the operation of this service. At one time flexibility was the keynote. Today the H-bomb threat has made mobility equally necessary. The older concepts of Civil Defence envisaged the warden as staying behind. Now he will be expected to evacuate his area of responsibility with the people he serves, and then return to assist in clean-up operations.

The main function of Civil Defence is to implement what is known as the Federal Policy Against Atomic Warfare, or Evacuation. The wardens' functions, therefore, must be directed towards the implementation of this policy.

The Warden Service is one of the largest of the Civil Defence Corps. It therefore requires both an administrative and an operational executive.

The main appointments within the Warden Service are:

Chief Warden; Sub-Division Warden; District Warden; Post Warden; Warden; Building Warden; Plant Warden; House Warden.

The Chief Warden is responsible for the organization and training of the Warden Service in his area of responsibility. During active operations his headquarters is at main Civil Defence Control Headquarters. During operations he will be responsible for keeping the service informed as to the direction and progress of all operations. He will at all times ensure that there is close and active co-operation between the wardens and all other services.

The Sub-Division Warden is responsible for the organization and training of all wardens within his sub-division. He will ensure that the wardens are fully conversant with evacuation plans within the sub-division, and during active operations or re-entry operations he will direct the efforts of wardens within the sub-division. He is also responsible for the maintenance of all equipment in the area, and must ensure that it is inspected periodically. His headquarters during operations will be at the sub-divisions control centre.

The District Warden serves two main functions within a sub-division. Before disasters take place his post is mainly administrative but becomes operational when in action.

The Post Warden is in charge of a warden post area. His headquarters is known as the Warden Post. During peace or pre-attack periods he is responsible for the organization of the wardens under him, for their training and for the organization of the post area's evacuation plan. To carry out his duties he will require eight to ten wardens.

The Warden, together with the Post Warden, is responsible for the preparation of the post area's disaster plan, and for the education of the public residing in the area. The effectiveness of the whole Civil Defence plan will depend upon the trust and confidence they are able to inspire in the public.

Building Wardens are normally in charge of office buildings, schools, apartments, etc. Normally they are responsible to the Post Warden of the area in which their particular building is located. Building wardens must have detailed knowledge of the over-all plan of the building (entrances, emergency exits, emergency equipment, number of offices). To assist him, depending on the size of the building, he will probably have Floor Wardens.

Plant Wardens will be required in any large industrial concern. They should be appointed on the basis of one per 30 employees.

House Wardens have been suggested as one means of ensuring that Civil Defence instructions are carried into each household. The idea is Norwegian and appears to have considerable merit in this day when complete knowledge of Civil Defence plans by the general public is necessary for their success.

High qualities are demanded of the warden. He must be dependable. He must embody ways of behaviour which are expected of him and which he expects to find in other people. If he expects people to find him dependable, he must be dependable by habit. If he tells people to be calm in times of stress, then he must set the example. He must be a man of common sense, practical experience and ability, and of understanding. He must be one of the ordinary people, yet not so ordinary that he does not stand out by having that something extra which will command their respect during any situation.

He must know his job. His usefulness to the Civil Defence cause will depend upon how much knowledge he can assimilate. In addition to having full knowledge of Civil Defence plans and general information concerning effects of weapons, he must acquire complete information concerning the area he is responsible for and its residents. Without being a busybody he must enquire into the private lives of all the people. He must know the numerical strength of each household, the relationships between neighbours, their domestic habits. He must, therefore, exercise tact and understanding.



He must have imagination. He must be able to visualize what the area will look like after disaster. He may have a detailed knowledge of the area during peace but the appearance of the area after it has been devastated will present an entirely different situation.

The all-embracing quality the warden must have is Leadership. It will be to those who have this quality that people will turn. It is therefore necessary to draw these people into the Warden Service.

A general rule has been established that a Warden Post Area should contain approximately 1,000 people or an area approximately one-half mile by one-half mile. This suggestion should not be taken as a hard and fast rule because local circumstances such as low densities of population, hotels, apartment blocks, etc., may be the deciding factor.

The boundaries of the post areas must be well defined so that there will be no gaps or overlapping of authority. If a street has been designated as a boundary, then the houses on both sides of that street must be included in one or other post area. In addition, boundaries must be selected from an operational point of view. Polling sub-divisions may not be suitable for post areas either during evacuation or subsequent disaster operations.

It is suggested that warden post areas should be numbered consecutively in blocks of one hundred. "A" sub-division from 1 to 99; "B" sub-division from 100 to 199; "C" sub-division from 200 to 299, etc.

Each Warden Post area should be divided into patrol areas, with at least two wardens in charge of each patrol area. It would be their responsibility to ensure that each inhabitant of a patrol area has full knowledge of his area Civil Defence plan. Ideally, the wardens selected for each patrol area should be residents of the patrol area.

The Warden Post is the Headquarters for the wardens of the Post Area. Each post should be suitably located within the post Area in order that it can serve the area operationally, as an information centre for the public, and as a headquarters.

It must be easily accessible and not subject to blockage, fire or collapse. If possible, it should be situated close to a main route.

Although evacuation is the keynote to Civil Defence plans, it must be remembered that shelters are a natural corollary. Consequently, warden posts must be constructed in line with the shelter requirements of the area which they are to serve. This applies to both target and non-target areas.

The equipment which should be located in each warden post will depend, to some extent, on whether the post is located in a target or a non-target area. However, as a guide the following items of equipment should be common to posts in both areas:

For Operations – a large-scale map of the post area, a log book to record all happenings in the area, a smaller map of the sub-division showing the boundaries of the other warden posts.

For First Aid – a first aid kit and old but clean linen sheets or towels. A stretcher or material which can be used as such.

For Fire – pails of sand and water, stirrup pump.

For Communications – a telephone, message pads, a runner or runners.

For Evacuation and Rescue – household register, road directional signs.

For Rescue – ropes of varying types, car jacks.

For Sieges – in the event that wardens are expected to stay in their post shelter, food supplies for a period up to seven days.

Because of the nature of his duties, the Warden's training must be planned to give him complete confidence in his work and equip him to do justice to his responsibilities. He must have a firm grasp of the fundamentals of Civil Defence; he must receive training directly applicable to his service; and he must receive specialized training in radiation monitoring and traffic control.

In order that evacuation plans can be developed for the post area, wardens must be instructed in compilation of records (household registry); survival methods; shelters; traffic and crowd control; use of power megaphones; message writing and communications; how to meet and instruct the general public; use of the pocket dosimeter as a survey instrument; emergency sanitation, and decontamination procedures.

The Warden Service must also be prepared to co-operate with other services, as follows:

**Public Information:** Disseminate information, direct the residents of the post area. During periods of alert pass along factual information to allay fears and counter rumours.

**Transportation:** The warden should encourage and assist in planning for evacuation transportation. A current list of vehicles suitable for "lifting" the population must be maintained.

**Police:** The wardens near withdrawal routes can assist by direction of traffic, reversing incoming traffic, blocking cross streets, and crowd control. In reception areas he can assist in prevention of looting and in the preservation of law and order.

**Health:** First aid training will come in handy during evacuation. In reception areas, he can assist in decontamination and setting up emergency sanitation devices.

**Welfare:** Assist in surveys. At assembly areas and in reception areas assisting in emergency feeding and housing.

**Fire:** At all times assist in fire prevention work. In reception areas fire hazards will increase because of the over-population of all small communities.

**Rescue:** In disaster operations and post-attack operations assist in rescue work as may be required.

And now we will discuss Warden duties in Target Areas.

The proposed federal policy concerning atomic warfare envisages four distinct operational phases to the plan. The first two phases, evacuation of non-essential elements of the population during the period of declared national emergency, and evacuation or withdrawal of the population immediately prior to an attack, will require the services of the wardens.

In the first two phases it is the duty of the wardens to educate the public in the part they will play. This can best be carried out either by neighborhood meetings or individual visits to the household. Each person residing in the post area must know at what phase advice will have to be provided as to what possessions one must take.

The wardens, once they have cleared their charges, during an evacuation, if time permits will evacuate themselves into the reception area or to some assembly point well outside the area of potential damage. If time does not permit, it will be the duty of the warden to take cover in specially constructed shelters, and should the bomb be detonated, remain under cover until advised to come out.

Wardens who have been successfully evacuated into reception areas will be expected to either assist in the reception phase or prepare to re-enter the devastated city in the third phase of the Civil Defence operation. Should a bomb have been detonated they will be expected, if the areas are not highly contaminated, to assist in the conduct of operations or carrying out rescue operations. Should the bomb not be detonated, it might be possible to re-enter the evacuated city to conduct salvage operations.



Warden duties in non-target areas are somewhat different. Most of the non-target areas will be reception areas for persons evacuated from target areas. Wardens in these areas of reception will be closely allied with the welfare services, and should assist in the planning of reception, billeting, feeding, sheltering and decontamination.

The care that a warden in a target area will take in obtaining a detailed knowledge of his post area and its residents also will hold good for a warden located in a non-target area. He must have an accurate knowledge of the people in his area of responsibility. He must train them in their expected duties. He must also teach and supervise the construction of household shelters in order to protect the inhabitants against possible radioactive fallout.

Apart from assisting in the movement of hospital patients, there does not appear to be any special function for the Rescue Service during the first two phases of the proposed evacuation plan. The Warden Service is directly involved. In the third phase of the evacuation plan, it is expected that some rescue operations will be conducted whenever contamination levels have fallen or are not dangerous. Warden Service functions will not be so onerous as previously thought because of the evacuation of the majority of the residents.

The possibility of amalgamating the functions of these services, therefore, is under consideration.

A Rescue Party consists of approximately eight men. A Warden Post Organization consists of approximately the same number. Therefore, it is conceivable that a team of wardens could be trained as a rescue party, in addition to their other duties.

It is thought that each post area should therefore organize itself so that during the first two phases it would carry out warden functions, and during the re-entry or third phase carry out rescue and control operations. Wherever possible, wardens and/or rescue party personnel would be directed to their own post areas. This is an ideal which may not be achieved in many places.

In conclusion, we must emphasize that the Warden Service is the key to the successful evacuation of target area populations. Wardens must receive sufficient training to enable them to carry out their duties. They must be fully conversant with the evacuation plans of the city. Every citizen in his post area must be made familiar with the Civil Defence plan. Wardens must be able to inspire confidence.

Without detracting from the importance of any other service in Civil Defence, it will be seen that the warden has by far the most onerous job, but it is also by far the most rewarding one. The better the wardens know their job, the better the chances of the people in surviving disaster.





# FOLLOW-UP SPEECH

No. 10

Time: 25 minutes

## CIVIL DEFENCE IN INDUSTRY

I am here to speak to you today on the need for Civil Defence in industry.

First, though, some of you may be wondering why we have Civil Defence at all.

Well, that's not so hard to answer.

Until the end of World War II, Canada was protected from direct assault by land, sea or air because she is bounded by two vast oceans, a polar ice cap and a friendly nation.

Distance was our ally.

But the day the first atom bomb was detonated over an inhabited city, Canada lost her invulnerability.

Since then, rapid long-range airplanes have practically annihilated distance. The advent of the H-Bomb has left our largest city liable to destruction by the explosion of one well-aimed high-yield atomic weapon.

And our military authorities now warn us that as yet no completely successful military defence has been devised to halt an attack from the modern magic carpets which exceed the speed of sound.

So, obviously, at the outset of an atomic attack on Canada the civilian population would be right in the front line. The people would then be responsible for their own defence.

While our larger cities, thickly populated and densely industrialized, would be the primary targets, the remainder of the country would be menaced by fallout, the delayed or secondary action of the H-Bomb.



Fallout, a dense cigar-shaped cloud of radioactive particles of dust, 200 miles or so long by about 40 miles wide, drifts with the upper winds from the scene of the explosion over the countryside, continuously dropping lethal dust en route, endangering life, food, water supply and crops.

A further hazard would come from enemy planes which might be forced to jettison their missiles before reaching their targets. It is apparent, therefore, that no part of Canada, however remote, could consider itself immune from attack by air.

While this presents a grim picture, the object of this talk is not merely to alarm you, but to give you a realistic outlook on what could happen if Canada were attacked and then to show you how we can cope with this menace.

Obviously, there would be little hope if some plan of survival were not prepared beforehand. If we sit back waiting for the enemy to strike, we merely play into his hands and encourage him to move in.

But if he knows we have a well-prepared plan, with our civilian population trained and ready to co-operate, he will think twice before embarking on an extremely hazardous adventure which could well prove highly unprofitable.

So, this is why we have Civil Defence.

Canada's Civil Defence planning to survive atomic attacks is framed on two basic measures: the evacuation of selected large cities and the use of shelters for protection against radiation fallout by the remainder of the population and the evacuees.

These selected large cities are called "target areas".

Civil Defence does not advocate evacuation of these target areas because it is the best of survival alternatives, but because there is NO alternative.

On the other hand, because of the danger of lethal fallout, the chances of survival in smaller cities and rural areas are greater by staying put and using shelters when menaced.

The better organized the evacuation, the more lives will be saved. Unorganized evacuation could easily lead to panic and find the mass of the population wandering about in the open in grave danger from fallout, which is likely to cover thousands of square miles, or exposure to inclement weather.

Within a few miles radius of a strike of one of these high-yield weapons, there is no chance of survival. All life and property would be completely destroyed.

Therefore, the only hope of survival in this event is NOT to be there when it happens.

Fortunately, Canada has not many urban and industrial centres which could be considered as likely target areas. But it is within these centres that the bulk of the population is congregated and in which most of our industries are established.

Taking a long-range view, the ideal solution would be the permanent dispersal of industries and, as a corollary, populations. Next to the ideal of permanent world peace which seems a long way off, this would be the best plan and provide the most effective way to reduce the target value of any area. But because it involves radical adjustments in our social, industrial and economic structures, it would be difficult to achieve. So our plans must be based on conditions as they are.

Evacuation and Reception are planned in four phases:

PHASE A: sees women and children, aged and infirm, hospital patients and other non-essentials of an urban population moved out of the area to prepared havens located 100 miles or more from the centre of the target city. This is a pre-attack operation which goes into effect on advice of the Federal authority. It is estimated that the minimum warning period in Phase A would be about six hours, though it could be a matter of days.

PHASE B: sees the remainder of the population move out on the Alert warning. The Alert is sounded when enemy planes have been spotted approaching Canada and attack seems imminent. This warning provides a minimum of three hours but with proper organization, training and co-operation of all citizens, each of whom must have learned beforehand what he or she is to do, it is believed that the operation can be carried out successfully. These evacuees are taken to a Reception Area from 25 to 50 miles radius of the centre of the Target Area.

PHASE C: would see rescue teams, engineering and fire-fighting services moving back into the stricken city when declared safe. This would be the start of the reproduction program of the city's industries and mercantile life.

PHASE D: sees rehabilitation and the return to homes, where possible, begin.

Now, as stated at the outset of this talk, we are here to discuss Civil Defence in particular relation to industry.

First, let me emphasize the vital importance to the nation of our industrial potential. Should the enemy achieve his primary object of knocking out our industrial potential and demoralizing the public will to win, the war would be lost. We would be faced with annihilation or submission and possible slavery by an enemy whose way of life is totally opposed to ours.

And bear in mind, please, this possibility, while remote, could happen if we fail to prepare for such an onslaught, well and thoroughly in advance.

Up to and including World War I, no matter how tough the fighting nor how many countries were over-run, it did not take place within our boundaries. Distance made us immune to attack. As a result, not only were we able to maintain our industrial potential, we were able to step it up, making Canada a major source of supply to the Allied Forces and a vital factor in reaching a victorious conclusion.

In the event of nuclear warfare, we must expect attack on our country by air and sea and we must plan to maintain our industrial potential while the emergency continues.

To complicate the problem still further, there is the fact that no defence yet devised can save the physical components of those industries which are located within a few miles of where an H-Bomb bursts.

All we can do is prepare beforehand for the evacuation of personnel and the safeguarding of records and formulae.

And to achieve this, it is imperative such planning be co-ordinated with the general Civil Defence scheme.

Fortunately, in most industries today, the nucleus of a Civil Defence organization already exists. They are prepared to cope with the everyday hazards peculiar to their particular industry. It is when these hazards are aggravated by the threat of enemy bombing that it becomes necessary to extend their functions.

It will be too late to begin organizing for Civil Defence in industries when war breaks out. Preparation must be made beforehand.

This is not too complicated, fortunately, as the basic principles of organization remain the same as for a community. Each service is required, though the emphasis may change according to the requirements of different industries.



It may not be easy for each industry to implement all recommendations immediately, but unless plans are prepared and started, a war would find industry completely unprepared.

In order to determine its vulnerability to air attack, a thorough survey of the plant and all operations involved should be made. A series of facts should be detailed on a large-scale map. Statistics and other essential information could be listed on separate transparent overlays to avoid complicating the map.

The following information is considered fundamental to any plan:

Population density, indicating the number of people working in each department or area within the plant.

Type of construction throughout the plant, indicated by a colour scheme. This information is necessary to determine probable effect of blast on the structure and to acquaint the planning committee with conditions which may be encountered after an attack.

Susceptibility to fire. This is determined by the continuity of combustible materials in the structure and contents, the density (number of buildings in the plant), the distance between buildings and the height of each structure.

Indications of: key installations such as fire protection devices, water and gas valves, power generators and steam plants; suitable control centres, shelters or possible shelter sites, exits and escape routes and other strategic information; the location of vital machinery and highly inflammable or explosive materials; maps or overlays of adjacent streets, driveways, parking lots and public transportation systems.

The foregoing are the initial requisites for an appraisal of vulnerability of any plant and a Civil Defence program can be planned accordingly. Most larger industrial firms will have accumulated a great deal of this information already and considerable data may be supplied by insurance companies and other protective agencies.

We must also be prepared to offer industrial employees the type of safeguard which maintains their will and their ability to continue production. The means to help these employees and safeguard records and formulae are made available through co-operation with Civil Defence.

Now we all are well aware that Civil Defence alone could not win a war. On the other hand, the lack of Civil Defence might well lose it.

Similarly, industrial Civil Defence plans will not put damaged industries back into production but without such plans they may be unable to get back into production again

elsewhere. It would also be bad for morale if large numbers of industrial workers were kept idle through lack of foresight in planning rehabilitation of industry.

This means that industry should plan Civil Defence measures necessary to save lives and measures necessary to ensure continued production in partially damaged buildings, or elsewhere, if the former is impossible.

Civil Defence measures necessary to save lives must be planned in conjunction with local Civil Defence authorities. To ensure continued production, plans should be made to safeguard removable equipment, blueprints, documents, reconnaissance of alternative industrial sites, etc., necessary for re-establishment of the industry in the event of the premises being wholly or partially destroyed. This will be the concern of the industry. But it should be borne in mind that any transport required or any movement planned to begin after the warning for Phase A evacuation is received, must be co-ordinated with the area Civil Defence evacuation plan.

Some of the factors which will affect the development of a suitable program are the layout of the industry; structural protection of equipment; treatment of glass; alternative utility services; lighting and ventilation; reserve equipment; and resistance of buildings to collapse.

The effect of bombing upon the output of an industry may depend upon the layout and distribution of the equipment and services; arrangement of them, if possible, may be advantageous in mitigating the effect of attack. Where, for example, a number of processes takes place successively, it is desirable to have as many lines of parallel production as possible. Any key machine or process which forms a link common to several parallel lines of production, and any vital items such as power units or pumps, should be duplicated. Duplication is desirable for services such as electric cables or steam pipe-lines, and also for stores of raw materials, components, tools or finished products.

The chance of production being interrupted will generally be less if similar items or processes are separated. For example, if two similar machines were close together, one bomb might destroy both and entirely stop their combined output. Furthermore, the loss of the entire output at one time is generally more serious than the loss of half the output on two separate occasions. Similar items or processes should therefore be separated as widely as possible, especially if they are vital items or key machines. If physical separation is impossible, as will often be the case in existing works, extra local protection will be necessary.

The objects of protection and of any structural precautions are to limit the amount of damage which will occur and thus to reduce the period during which the industry would be put out of operation.

The first step to be taken, therefore, is for the management to survey its industry and to decide which machines warrant protection. When deciding which items should be protected, you should consider the vital importance of the item to production, (this may depend upon the extent to which duplication has been possible), the length of time taken to repair or replace the item after it has been damaged (this may depend upon the availability of spare parts), the vulnerability of the item to damage, and the practicability and efficiency of any protection.

Local protection of equipment can be provided by walls or by pens around each item with or without overhead cover or by arched covers. Where separation has not been possible, protective walling can be built between adjacent machines. Lines of walling can be used to divide areas such as machine shops or stores. Overhead cover may be required where lateral protection is impractical. In some cases, protection can be achieved simply by adding a thickness of material to the casing of existing equipment.

Where protective pens or walls cannot be provided inside an existing framed building, a measure of lateral protection will be obtained if the external walls are thick enough to resist bomb fragments. In most cases such existing walls have less resistance to blast than that required for new protective walls. Existing walls in unframed buildings will usually be of little value, except to resist fragments from a distant explosion.

Where outer walls of a building are used to provide lateral protection, all door or window openings at or below the level of a vulnerable plant should be baffled or bricked to a sufficient height to give protection to the equipment.

If the equipment is resistant to blast and earth-shock but is vulnerable to bomb fragments, protection against fragments can sometimes be achieved simply by covering or surrounding it with the necessary thickness of material. Tanks can often be protected by earth embankments or by walls which are supported by the tanks themselves. Parts of boilers and machinery casings can sometimes be protected by a thickness of brick-work or concrete laid on the casing, provided the need for access to the equipment ventilation or heat-insulation does not make this method impossible.

No method has yet been found to prevent glass being broken by blast. This applies to plate glass as well as to the thin sheets normally used for glazing. Certain other types of glass such as wired glass, toughened glass and "safety" glass are useful to a limited extent.

The treatments recommended for plate glass or ordinary sheet glass are similar to those approved during the last war, and aim to minimize the effects of breakage by preventing casualties by flying glass, preventing damage to the contents of buildings, and maintaining protection from the weather. The first two aims are mainly met if the



treatment prevents glass flying inwards and causing injuries and damage inside buildings. It is also an advantage if a treatment holds glass together in its frame after it has been broken. These results may be secured by the adhesive treatment of glass or by a simple bracing system, but neither will make any material difference to the amount of glass broken by blast. The treatment of glass in areas liable to atomic attack must now also aim at preventing fires being started inside buildings by heat-flash.

It is highly important to plan alternative utility services where possible. Serious loss of production can arise from the failure of the public utility services, even though a factory itself is not damaged. Public Utilities are considering plans to ensure the rapid restoration of supplies following atomic damage, but delay in restoring production will be immensely reduced if it is possible to bring standby equipment into use at once. The provision of standby generating equipment, stocks of producer gas units alternative supplies of water for production purposes from the main system, suggest themselves immediately, but managements are recommended to get into touch locally with the public utility and discuss exactly in what ways alternative services can best be provided.

Lighting and ventilation require special study in relation to plant protection. The topic of blackout and measures to stop the emission of glare, as well as the screening of lights for outside work, must be considered. I suggest that whatever protective measures may be taken for one purpose, such as the protection of glass in roof lights, may also serve the dual purpose of providing a good means of blackout.

The need to provide for "blackout" raises other problems which have a direct bearing on production, including the need for improved lighting and ventilation to enable efficient production to be maintained under these conditions. No special guidance is required on either subject except to emphasize that some system of mechanical ventilation may be necessary if efficiency is to be maintained.

The difficulties experienced at the present time in obtaining supplies will be intensified if heavy damage is caused by enemy attacks. Plans for continued production should provide for sufficient reserves of all essential items to enable damaged equipment to be repaired at once (particularly for those items which would take the longest time to repair or replace). A stockpile of consumable stores would afford a cushion against delays in securing supplies. In some cases it may be more economical to stock spares of small items than to provide each with local protection. Stocks of spares are usually desirable for piping, cables, electrical equipment, conveyor parts and pumps. Spares should be stored remote from the works or factory for which they may be needed.

Great damage to equipment and serious interference in production can be caused by the collapse of buildings under air attack. It is desirable, therefore, that buildings

housing vital equipment should be made as resistant as practical to the local or spreading collapse which may result from a high explosive attack, and also to the blast from an atomic explosion at a distance.

Most of the services required for the protection of plants are already provided, but are usually planned on a small scale to deal principally with normal existing hazards. In order that the plant or industry is better prepared to deal with hazards of war, the existing organization should be expanded by the training of employees in the work of the various Civil Defence services.

During a national emergency, the plant probably will have to be organized on a 24-hour basis. This is relatively simple for an industry already working on a 24-hour basis. But in small industries or those operating only for a portion of the day, a multiplicity of teams will be required – duty only to come once every so many days.

In setting out the control of service pattern, many firms sub-divided their plants in much the same manner as is recommended for cities and towns. Each sub-area is self-contained, having its own services, etc.

The following procedure is a suggested method of commencing the Civil Defence organization:

Establish liaison with the local Civil Defence Co-ordinator.

Appoint a Civil Defence Director and a plant or industrial planning committee. This committee should include a labour representative.

Study the strength and weaknesses of the industry to attack, i.e. fire hazards, layout of water systems, etc.

Select key training personnel for Civil Defence instructors' courses sponsored locally, provincially or federally.

Commence a training program for personnel who have volunteered or have been assigned to particular tasks.

Locate shelter areas if outside the likely area of severe damage.

Issue instructions to all personnel on what is being done.

Have evacuation drills for all personnel.

All of these plans should be approved by the manager or owner.

Protection of personnel includes: a warning system; organizing and training of the services; making use of the federal, provincial or local Civil Defence schools; development of a warden program and education of workers; and construction or strengthening of existing structures or shelters.

The protection of plant and equipment includes: development of auxiliary water supplies for fire-fighting; organization of control centres; plans and specifications; inspection of instruments and gauges; storage of hand tools in designated sheltered areas; power plants; and dispersal of facilities.

The protection of plant and equipment is basically a matter of compromise. As the degree of protection rises, so does the cost. And as protection increases, operating efficiency may drop, as when too many blast walls are erected or facilities are too widely dispersed.

The problem of what and how to safeguard, therefore, becomes a question of weighing the importance of the plant and equipment under consideration against the returns which can be expected from protection. In the last analysis, it is the contribution of the individual piece of plant or equipment under consideration which determines whether it rates safeguarding.

When the devastated area of the target city can be re-entered, the resumption of production will include the organization of mutual assistance schemes between industries; repair and salvage of equipment; welfare program for employees and re-organization of the personnel.

In concluding, I would like to point out that this is merely a brief introduction to the use of Civil Defence as a protection to industry in time of war or natural disaster.

While we did not touch on natural disaster, it will be readily apparent that the Civil Defence measures we have outlined are quite flexible and easily adaptable to all industrial hazards.

I hope it has been made clear that industries located in target areas have a much more complicated problem than those in smaller centres.

Industries within the target area must prepare for total loss of their plant if it should be located within the radius of a few miles of an H-bomb explosion. There is a problem of evacuation for personnel and for records, formulae, blueprints and equipment essential for re-establishment elsewhere.



Beyond the radius of total destruction, other plants will face damage varying in degree according to the distance from the burst. In some cases they may be able to re-enter their buildings, when pronounced safe, and resume production.

Beyond these ranges, in the smaller centres not likely to be attacked directly, the problem is one of protection from fallout and the decontamination of plant and equipment as required after the danger has passed.

It is hoped that this outline has given you a pattern on how to proceed in preparing to protect your employees, your plants for the maintenance of production in time of national or local emergency. In this, you can be assured of complete co-operation from local, provincial or federal Civil Defence authorities.







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# " TRAINED HANDS MINIMIZE DISASTER "

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EDMOND CLOUTIER, C.M.G., O.A., D.S.P.,  
QUEEN'S PRINTER AND CONTROLLER OF STATIONERY  
OTTAWA, 1957